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ABSTRACT

Designed to provide a broad picture of the state of instructional television for adults and to identify major issues relating to instructional telecourses, this reader presents 50 articles in seven categories relating to the production and distribution of telecourses. Section I presents six articles on the growth in the use of telecourses, which include national survey data on telecourse use, information on current practices regarding course production, and a historical overview of the last 40 years of instructional television in the United States. Section II provides seven articles on the design and production of telecourses, focusing on why they work or fail to work, and the purposes and steps of instructional design in the production process. Section III presents case studies of telecourse use in six locales. Section IV considers some of the aspects of implementing or offering telecourses, including selection processes, views of faculty teaching the courses, special services required by the distant learners, and administrative arrangements for telecourse use. In section V, five articles report on the characteristics of telecourse students/viewers and identify some unanswered questions about them. Section VI presents eight articles on the evaluation of telecourses. Finally, section VII deals with the broadcasting and distribution of telecourses, covering telecommunications policies, technological changes, technical considerations, and economics. (HB)

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REACHING NEW STUDENTS through NEW TECHNOLOGIES

A READER

Leslie N. Purdy, Editor

FOR

THE COAST COMMUNITY COLLEGE
Costa Mesa, California

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REACHING NEW STUDENTS with NEW TECHNOLOGIES is a collection of fifty articles, speeches, reports, and research studies about using telecommunications for adult higher education. Included are documents describing various projects for instructional television at two- and four-year colleges and universities, research findings concerning the effectiveness of television and radio for instruction, and the recommendations and opinions of many leaders in the movement to use television for adult education. The content will be useful to anyone involved in educational television, including producers and broadcast personnel, educational administrators, and faculty members using telecourses.

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Preface

After studying the nature and size of the literature on instructional television and adult learning, one must conclude that this field has become a very important part of American higher education. The literature has grown rapidly in the late 1970's and early 1980's. The growth has coincided with the increased use of telecourses by colleges and universities and the developments throughout the country favoring the production and use of telecourses. Such developments included:

1. The first national study of higher education's utilization of television by the Corporation for Public Broadcasting and the National Center for Education Statistics, published in 1981.
2. The Station-College Executive Project in Adult Learning which was funded by the Corporation for Public Broadcasting and published a summary report in 1980.
3. The collection of articles compiled by the American Association of Community and Junior Colleges and published in the monograph *Using Mass Media for Learning* (1979).
4. The report of the project on Adult Learning and Public Broadcasting conducted by the American Association of Community and Junior Colleges with support from the Fund for the Improvement of Postsecondary Education, published in 1980.
5. The creation of a national educational television network (PTV-3) by the Public Broadcasting Service in 1982.
6. The grant of $150 million by the Annenberg School of Communications in 1981 to the Corporation for Public Broadcasting to create innovative and high-quality college-level television materials.
7. The television courses, research and publications of the University of Mid-America, funded in part by the National Institute of Education, between 1975 and 1982.
8. The establishment of the Center for Learning and Telecommunications by the American Association for Higher Education in 1981 with a grant from the Carnegie Corporation.

In addition, studies and reports on instructional television have been made by states, major educational associations, private companies concerned with publishing and commercial television, and individual colleges and universities.

One result of all this activity is that there exists a large literature on the subject of instructional television for adult learners. Unfortunately, the literature has tended to be difficult to find and acquire because it is spread through various journals, monographs, unpublished reports and speeches. A further problem in the dissemination of this literature is that it reflects so many disciplines (psychology, telecommunications, and mass communications) and sub-fields of education: educational technology, adult and continuing education, educational psychology, distance learning, and alternative learning systems. Articles related to the topic can also be found in journals and books reporting educational research and educational administration. Most people involved with telecourses do not have the time to follow this diverse literature and do not have access to the unpublished or limited edition publications.

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In response to this problem, Coastline Community College, with the support of many individuals representing agencies and institutions interested in this field, undertook to compile an anthology on the topic of television courses. Coastline Community College, one of Coast Community Colleges of Orange County, California, has been active in the production and offering of telecourses for years. Like so many other institutions experimenting with this relatively new form of education, Coastline has received numerous requests for information and documentation of the problems and successes of this work.

Several goals were specified for the book of readings. First it was hoped the book will present important articles, speeches, research findings, and reports about the use of telecourses which together will provide a broad picture of the state of instructional television for adults. A second goal is to identify various issues in instructional television for adults. A second goal is to identify various issues in instructional telecourses and present differing views on these issues. In accomplishing such goals, it is hoped the book will further the future use of telecourses by helping to prevent repetition of common mistakes and help to improve the level and quality of future research so that comparative studies can be done and more sophisticated research questions asked.

The search for selections for this book covered many published and unpublished sources. An Advisory Committee (whose members are listed in the front of the book) helped to uncover important speeches, special reports, unpublished institutional research, and miscellaneous documents. The advisors also contributed to identification of the major topics for the book and assisted in the search for and selection of documents. A search of the ERIC Documents collection was conducted. An effort was also made to review the Canadian and English literature on distance learning, although that literature proved to be so extensive as to be beyond the time and resources of this project. Even with the limitations in the search for documents, the process of finding and selecting the fifty selections for this book involved the acquisition and review of well over one hundred additional books, articles, reports and speeches.

With the discovery of the size of the literature on the topic, it was decided to increase the length of the book. Even with the additional length, it was not possible to include all the well-written and significant selections found. For the reader who wishes further information on the topics in this book, many of the selections contain footnotes or bibliographies.

In the process of reviewing documents and making selections, it soon became clear that not all aspects of television for adult education have received equal attention in the literature. Thus, the criteria for selection of articles varied from section to section. For example, in selecting articles in Section V, Evaluation of Telecourses, it was found that there are many studies purporting to evaluate telecourses. Problems with the nature and size of samples and the methods of analysis make the significance of some of the documents questionable. Thus, it was decided not only to include examples of some of the better research and evaluation efforts, but also to include selections which discussed problems of evaluating television instruction and adult distance education in general. A different problem arose in Section IV on Offering Telecourses: an insufficiency of materials. The pool of articles on this topic is surprisingly small, given the number and diversity of institutions which are providing telecourses to their students. The introductions to each section describe the criteria used for the selection of readings in that section.

It is hoped that this book will be helpful to the many people involved with different aspects of telecourses: faculty and administrators, television station personnel, producers and instructional designers of telecourses, educational policy-makers at local, state and federal levels, publishers, editors, writers, and educational researchers and scholars at two- and four-year institutions. The book accomplishes the goal of demonstrating the extensiveness and viability of this form of education. However, it also reveals the many areas needing further research, experimentation, and analysis. Only as these problems are addressed in future articles, reports, and books will educational television and telecourses move beyond being the current "innovation" in higher education to being an accepted and permanent mode of adult education.

Acknowledgments

This book reflects the advice and efforts of many people who deserve recognition. The members of the Advisory Committee all made important contributions in the early planning stages and directed me to possible source materials. I especially appreciate the advice and support given by Jim Zigerell and Bob Carter. Frances M. Aversa, formerly director of research and evaluation at the University of Mid-America, was helpful in locating UMA documents and authors. I am grateful to Peter Vander Haeghen, who first suggested the idea of a compilation of readings, and to Tom Gripp who has supported the project in many ways.

Louise Hewitt, editor, telecourse publications at Coastline Community College, provided a great deal of useful advice regarding manuscript preparation and procedures, as well as encouraging me at all stages of the project. Olivia Flores and Dorothy McCollom deserve a special word of thanks. They not only handled the huge load of typing, correspondence and filing but also helped with the many details related to a project of this kind. Additional assistance with the preparation of the manuscript was provided by Florence Randolph.

Finally, without the cooperation of the authors of the articles included in this book and their publishers, this book never would have been possible.

Section I

Growth in the Use of Telecourses

Introduction

Article 1

"Television Utilization Study" by Peter J. Dirr, Joan H. Katz and Ronald J. Pedone

Article 2

"Instructional Uses of Television by Two-Year Colleges, 1978–79" by Peter J. Dirr, Marilyn Kressel and Ronald J. Pedone

Article 3

"What Is a Telecourse?" by James J. Zigerell

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"The History of Television and Radio in Continuing Education" by Leslie N. Purdy

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Article 6

"Chicago's TV College: Making the Walls Fall" by James J. Zigerell and Hymen M. Chausow

Section I

Growth in the Use of Telecourses

Introduction

Since television was first invented and schools began experimenting with its potential, the record of instructional television has alternated between growth and rejection. In this section, the selections summarize this up-down-up again record and document the evidence of current expansion. This historical view may temper current enthusiastic opinions that instructional television is finally an accepted and proven approach to teaching. Yet it is also true that many of the problems which caused early experiments to fail have been solved. Current use of television exceeds any prior use in terms of numbers of schools, students, and courses, in part because systems of production, acquisition, and broadcast are much better organized.

Until recently, exact and reliable figures about the use of telecourses have been difficult to find. There were no national or state-by-state reports of student enrollment, college adoption, or broadcast arrangements. In 1978–79, two national surveys were done which provided the first hard data regarding television use. The first of these surveys includes data from 2,812 institutions of higher education in the United States, the second from two-year colleges only. However, both studies look at *all* instructional uses of television, not just broadcast telecourses. Articles 1 and 2 provide summaries of the findings of those surveys.

It is important to distinguish between the many different uses of instructional television. The Zigerell article offers a definition of telecourses and distinguishes between various types of telecourses. Dr. Zigerell, a respected leader in the movement to use television for adult learning, provides an overview of current practices regarding course production and the nature of the student population taking telecourses.

The final three articles shed light on the last forty years of instructional television in the United States. The Purdy article is a brief review of the main events of the history of instructional radio and television up to 1979, the year the Carnegie Commission published *A Public Trust*, a comprehensive report on the future of public broadcasting. A landmark document in many ways, the Carnegie report called for public television stations to elevate instructional television to high production and broadcast priority. The chapter from the Carnegie report which is included makes many significant recommendations, including more research on television's strengths and weaknesses as a teaching medium.

Another event which current television educators should not forget is the creation and accomplishment of Chicago TV College (Article 6). An excerpt from the 1974 publication, *A Fifth Report*, summarizes the basic organizational plan and achievement of that institution from its founding in 1956. Serious students of telecourses should read the extensive research resulting from the Chicago TV College project; this research can be found in other documents published by the college.

Article 1

"Television Utilization Study"

by
Peter J. Dirr, Joan H. Katz
and Ronald J. Pedone

The Higher Education Utilization Study (HEUS) is a joint effort of the Corporation for Public Broadcasting (CPB) and the National Center for Education Statistics (NCES) to examine the uses of television and radio by colleges and universities in the United States.

In this first phase of the study, which dealt only with institutional uses of television, CPB and NCES worked with the American Association of Community and Junior Colleges (AACJC), American Association of State Colleges and Universities (AASCU), Association of American Colleges (AAC), National Association of State Universities and Land-Grant Colleges (NASULGC) and National Institute of Independent Colleges and Universities (NIICU) to conduct a survey of all colleges and universities in the United States. Institutions included in the survey were identified from specific higher education association listings and were compared with institutions listed in NCES' *Education Directory of Colleges and Universities 1977–78*.

There were approximately 3,130 colleges and universities in the United States during 1977–78, as reported in the *Directory*. Coverage for the Phase I survey did not include the following: (a) institutions in outlying areas; (b) U.S. service schools; (c) university system offices which were found to operate no academic programs; (d) closed/merged schools as reported during the survey period; and (e) schools not identified by the national higher education associations.

The total number of deletions (137) reduced the "working universe" to 2,993 institutions.

In spring 1979, letters were sent to the presidents of all colleges and universities in the working universe describing the purpose of the Higher Education Utilization Study. A copy of the survey instrument was enclosed with the letter. Approximately three weeks were allowed for a response. At that time, a follow-up letter was sent to the non-responding presidents with a new copy of the survey instrument. A third mailing (including another copy of the survey instrument) was made to non-respondents approximately four weeks later.

Finally, data gathering telephone calls were made to non-responding institutions. To minimize the chances of non-respondent bias, follow-up procedures for the telephone calls included classifying all institutions by geographic region, control or affiliation (i.e., public or private), highest level of degree offering (i.e., two-year or four-year), and enrollment size. In all, 144 separate

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Ronald J. Pedone is a Statistician with the National Center for Educational Statistics.

Peter J. Dirr; Joan H. Katz; and Ronald J. Pedone, in Higher Education Utilization Study, Phase I: Final Report, Corporation for Public Broadcasting, Copyright 1981. Reprinted by permission of the publisher.

Table 1

Working Universe of Colleges and Universities and Response Rates, 1978-79

	Total	Type of College Two-year Colleges	Public Four-year Colleges	Private Four-year Colleges
Number of colleges in working universe	2993	1154	453	1386
Number of colleges responding	2812	1067	410	1335
Response rate	94%	92%	91%	96%

categories or strata were established and response rates for each stratum were monitored. By survey closeout, no less than 90 per cent of all institutions found in any one stratum had returned a survey questionnaire.

The overall response rate for the 2,993 colleges and universities in the working universe was 94 per cent (see Table 1).

The follow-up procedure and high response rate permit imputation of data for non-respondents with a high degree of confidence. Imputed data for non-respondents, therefore, are included in the estimates presented in this report.

More details on the survey methodology and collection procedures that were used in HEUS Phase I will be found in *Higher Education Utilization Study: Technical Report,* available from the Office of Educational Activities, Corporation for Public Broadcasting.

In spring 1980, CPB and NCES again joined with the national higher education associations to conduct a more in-depth study (HEUS Phase II) of a small sample of colleges and universities. That study includes uses of radio/audio and probes further institutional organization of and support for instructional uses of television and radio. It also includes substantial amounts of information from faculty members and students. Results of HEUS Phase II are expected to be available in 1981.

Summary of Major Findings

This study found that approximately 71 per cent of the 2,993 colleges and universities surveyed make some use of television; 61 per cent use TV for instruction—25 per cent offer courses over television and 36 per cent use television to supplement existing courses.

Seven-hundred thirty-five colleges offered a total of 6,884 courses over television in 1978–79, an average of nine courses per college. Those colleges enrolled 498,000 students in the television courses, an average of 75 per course and 678 TV enrollments per college. Public four-year colleges offered proportionately more courses and enrolled proportionately more students than two-year and private four-year colleges. However, these totals were skewed by a few colleges that offered exceptionally large numbers of courses, enrolling large numbers of students. In reality, the most common experience was for a college to offer a single course over television and enroll 20 students in that course.

The greatest use of television is in public four-year colleges. Those institutions tended to use more campus closed-circuit television than open-circuit broadcast over public or commercial television stations. Public four-year colleges and two-year colleges use television about equally for total courses and supplement/enrichment. Private four-year colleges use television mainly for supplement/enrichment.

On-campus instructional uses of television were about three times as prevalent as off-campus instructional uses, and credit uses were five times as common as non-credit uses. Two-year colleges allocated proportionately more of their effort to off-campus instructional uses and promotion/recruitment than four-year colleges.

Colleges worked with a wide variety of television distribution outlets including campus closed circuit systems (60 per cent), public television stations (47 per cent), cable systems (28 per cent) and commercial stations (25 per cent). The campus closed circuit system was the sole or primary distribution outlet for 42 per cent of the colleges; the public television station served that capacity for 22 per cent of the colleges.

Colleges that worked solely or primarily with broadcast TV outlets tended to allocate larger percentages of their TV efforts to off-campus credit offerings whereas those that worked solely or primarily with cable systems and campus closed-circuit systems tended to focus more on on-campus credit uses.

Public four-year colleges reported offering 65 per cent of their TV courses solely or primarily over campus closed circuit systems, generating 76 per cent of all of their TV course enrollments through those courses. On the other hand, two-year colleges offered 36 per cent of their TV courses solely or primarily over PTV outlets, generating 64 per cent of all their TV course enrollments.

Television is not new to most colleges. Respondents reported working an average of seven years with their sole or primarily television outlet. Public four-year institutions on the average have the longest history, reporting an average of nine years compared to six years for two-year and private four-year colleges.

Many colleges play an active role in the distribution of telecourses, especially by producing courses and co-producing courses with the television outlet and by acquiring the courses which are distributed. Courses produced by the college itself are most likely to be distributed over cable systems. Colleges that work solely or primarily with PTV stations indicate that the station plays an active role which in some cases includes providing preview facilities and time.

Television consortia seem to be an important emerging institution at some colleges. Consortium membership is related to type of college, specific uses of television, allocation of total TV effort, the number of courses offered over television and the number of students enrolled in those courses. Twenty-eight per cent of all institutions using television for instruction indicated that they were members of a TV consortium. Proportionately more two-year colleges are consortium members (40 per cent compared to 29 per cent for public four-year colleges and 15 per cent for private four-year colleges). Colleges that offer courses over television are more likely to be consortium members than colleges which use television to supplement regular classroom instruction (48 per cent compared to 13 per cent).

Consortium members are more likely to use broadcast distribution than nonconsortium members and are more likely to allocate larger proportions of their TV efforts to off-campus instruction, outreach and promotion/recruitment. In 1979–80, consortium members offered 50 per cent more courses over TV than non-members and enrolled 140 per cent more students.

This study found that the major barriers to the use of television for instruction at some colleges are: lack of adequate institutional support; lack of available courses which meet the academic needs and standards of the institution; lack of faculty support for the use of television for instruction. Perhaps not surprisingly, the three factors which contribute most strongly to the use of television for instruction at other colleges are: strong institutional commitment, strong faculty commitment and availability of appropriate courses.

Several factors were found to be related to the opinions and attitudes of respondents from different colleges. Course users (compared to supplemental/enrichment users) tended to be more positive in their reactions to the conditions that affect instructional use of television. For example, 49 per cent of the course users saw the quality of available courses as a contributor compared to only 22 per cent of the supplementary/enrichment users and 11 per cent of the noninstructional users. For course users, lack of faculty commitment was the major barrier whereas for all other respondents lack of institutional support was the major barrier.

Colleges that rely on commercial TV stations seem to be more content with most aspects of television for instruction than institutions which work with other TV outlets. Institutions working primarily or exclusively with public and commercial TV stations cited the early confirmation of air schedules as a positive factor. Colleges working solely or primarily with their own campus closed circuit systems cited inability to support the systems as a hindrance.

Consortium members perceive the use of television for instruction differently than nonmembers. For consortium members, the major inducements to use television for instruction comes from the fact that available TV courses meet the academic needs and standards of their institutions, they receive high institutional support and faculty commitment, and they can depend on cooperation from owners of the TV outlets. For non-members, the two most positive factors were strong faculty commitment and availability of appropriate courses. Both members and nonmembers agree that the major barriers to the use of television for instruction are lack of faculty commitment and inability of the institution to provide necessary support services. (The fact that some of these conditions appear both as contributing to and hindering the use of television for instruction is an indication that they are important.) Consortium members also felt that the absences of confirmed program schedules, announced far enough in advance of air date, was a further deterrent to the use of television for instruction.

The element of experience with the use of television plays an important role in the extent of use. Those institutions which have used television for instruction in the past are more likely to use it in the future than those that have never used it (61 per cent compared to 30 per cent). Among non-users, private four-year colleges have the least prior experience and the fewest plans to use TV for instruction in the future.

Non-instructional uses of television (i.e., use for counseling, outreach, etc., but not for instruction) might serve as a transition to instructional uses for some colleges. Those institutions that were using television for non-instructional purposes in 1978–79 are more likely to have used television for instruction in the past and to have plans for future instructional uses than those that were not using television at all.

Article 2

"Instructional Uses of Television by Two-Year Colleges, 1978–79"

by
Peter J. Dirr, Marilyn Kressel
and Ronald J. Pedone

Study Background

This report is the culminating activity of a cooperative effort of the American Association of Community and Junior Colleges (AACJC), the Corporation for Public Broadcasting (CPB), and the National Center for Education Statistics (NCES) to determine for the first time the extent to which television is used for instruction and other purposes by all two-year colleges in the United States. A similar study was conducted concurrently for all state and land-grant colleges and universities and private colleges and universities.

A three-page questionnaire was sent to the president of every community and junior college in the United States in December, 1978. The questionnaire requested information about the college's uses of television, the uses for instruction, the types of television outlets (defined as "any broadcast or non-broadcast entity including public TV station, commercial TV station, cable system or closed circuit system") with which the college worked during 1978–79, the college's relationships with those television outlets, factors which contributed to or hindered the college's use of television for instruction, and the future role of television for instruction at the college. Several follow-up procedures yielded a final response rate of 94 percent of all two-year colleges in the country.

The Appendix of this report contains a copy of the questionnaire used, with an indication of how the colleges responded to each of the questions. More detailed information on the methodology and procedures used can be found in the *Higher Education Utilization Study: Technical Report*, available from the Office of Educational Activities, Corporation for Public Broadcasting.

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From Peter J. Dirr, Marilyn Kressel, and Ronald J. Pedone, "Instructional Uses of Television by Two-Year Colleges, 1978–79," Adult Learning & Public Broadcasting; pp. 4–12. Copyright © 1980 by American Association of Community and Junior Colleges.

Summary of the Findings

- 73 percent of all two-year colleges make some use of television; 65 percent use television for on-campus and/or off-campus instruction.
- 70 percent of the total television effort is devoted to instruction; the other 30 percent is devoted to uses such as promotion, recruitment, outreach, counseling, and staff development.
- On-campus instructional use of television consumes twice as much of the total television effort as does off-campus instructional use.
- 349 two-year colleges reported offering approximately 2,300 courses over television in 1978–79, generating approximately 162,000 enrollments.
- Seven out of 10 community colleges which use television for instruction work with more than one television outlet: about equal numbers work with a public TV station and/or their campus closed circuit systems; about half as many work with a commercial TV station and/or a cable system. However, in a forced choice question, the campus closed circuit system was most often reported as the *primary* or sole TV outlet.
- In most instances, colleges play an active role in selecting the courses offered over television. College-produced courses are more likely to get aired on cable and campus closed circuit systems than on public or commercial TV stations.
- In all respects except production-related activities, public TV stations play a more active role with the colleges than do other types of TV outlets.
- 41 percent of two-year colleges which use television for instruction are members of consortia of colleges offering or producing televised courses; this is especially true for colleges which work with broadcast stations.
- Providing support services and generating faculty commitment to the use of television for instruction seem to be the two most critical factors in the use of television for instruction; availability and academic integrity of courses is the third most important factor; availability of desirable blocks of time is fourth.
- 51 percent of all two-year colleges which are not now using television for instruction have plans to do so in the future.
- 49 percent of all two-year colleges would like technical assistance in utilizing television for instruction.

Uses of Television

This study found that 73 percent of all two-year colleges (789 out of 1088) make some use of television for instruction, student recruitment, promotion, counseling or other related activities. Table 1 shows that 706 (65 percent) use television for on-campus and/or off-campus instruction. Eighty-three (83 percent) use television only for non-instructional purposes such as promotion and recruitment, i.e., attracting new students to the college, and outreach, e.g., providing non-instructional services, community forums or information about the college to the community.

The 65 percent of the two-year colleges which use television for instruction includes those which use it only for instruction, and those which use it for instruction and other purposes. (Since many colleges use television for more than one purpose, the total of all uses exceeds 100 percent

Table 1
Uses of Television By Two-Year Colleges, 1978-79
(Asked of all respondents—N = 1088)

Type of Use	N. of Colleges	Percent
Instructional uses	706	65
Non-instructional uses only, e.g., promotion, recruitment	83	8
No use	299	27

of all responding colleges.) Fifty-eight (58) percent use television for on-campus instruction, i.e., courses for students meeting on-campus. Thirty-three (33) percent use television for off-campus instruction, i.e., courses for students who learn in their homes, offices, etc.

Non-instructional uses of television included: promotion/recruitment, i.e., to attract new students to the college—36 percent of all respondents; outreach, e.g., providing non-instructional services, community forums, or information about the college to the community—29 percent; counseling, e.g., role-playing, self-reflection—28 percent; staff development—26 percent; and other uses—10 percent.

Knowing how many institutions use television for what purposes is helpful but it is only part of the picture. Those respondents who used television were asked to indicate the percentage of their total television effort that was devoted to the various uses. The data shown in Table 2 indicate that 47 percent of the average total television effort was devoted to on-campus instruction (39 percent for credit and 8 percent not for credit). Twenty-three (23) percent of the average total television effort was devoted to off-campus instruction (19 percent for credit, and four percent not for credit). An additional 12 percent of the total effort went toward promotion and recruitment, 10 percent went toward outreach and counseling, and seven percent went to other uses, including staff development.

Another way of looking at these data is to note that 58 percent of the total effort is devoted to credit instructional uses (on-campus and off-campus), and 12 percent of the total effort is devoted to non-credit instructional uses (on-campus and off-campus). In all, 70 percent of the total television effort is geared toward instruction.

Extent of Televised Instruction

Although 65 percent of two-year colleges reported that television was used for instruction, only 349 or 32 percent reported that courses were offered over television during 1978–79. (See Table 3.) They offered from one to 50 courses and enrolled from five students to 10,000 students. On the average, those 349 institutions offered six courses each and had an average of 502 enrollments in those six courses. They had an aggregate total of approximately 2,300 courses during 1978–79, and generated approximately 162,000 enrollments in those courses. (That averages almost 75 enrollments per course.)

It can only be assumed at this point that the 357 colleges which reported using television for instruction, but did not report offering total courses by television, used the medium to supplement other types of instruction. Further study of this question is warranted.

Table 2

Proportions of Total Television Effort Devoted to Various Uses
(Asked of all television users—N = 789)

Type of Use	Average Percent of Total Effort
On-campus instruction for **credit**	39
On-campus instruction **not for credit**	8
Off-campus instruction for **credit**	19
Off-campus instruction **not for credit**	4
Counseling	5
Outreach	5
Promotion/recruitment	12
Other (incl. staff development)	7

Table 3

Extent of Televised Instruction by Two-Year Colleges, 1978-79

	Number of Colleges	Percent
All respondents	1088	100
Number of colleges making some use of television for instruction	706	65
Number of colleges reporting courses offered over television	349	32
Aggregate number of televised courses reported	2,300	
Aggregate number of reported enrollments in televised courses	162,000	

Types of Television Outlets

A special effort was made in this study to include both broadcast and non-broadcast uses of television. For this reason, the term **"television outlet"** was used instead of **"television station"** and was defined as "any broadcast or non-broadcast entity, including public TV station, commercial TV station, cable system or closed circuit system." Those institutions which use television for instruction were asked to indicate *all* of the TV outlets with which they work. If they cooperated with more than one, they were asked to indicate the outlet with which they worked **most closely.** Seven out of 10 (71 percent) reported that they work with more than one TV outlet.

Table 4 shows that two-year colleges which use television for instruction are about equally likely to make *some* use of a public TV station as they are to use their campus closed circuit system (57 percent and 58 percent, respectively). They are less likely to work with a commercial station or cable TV system (30 percent and 34 percent, respectively). However, when forced to indicate the primary or sole outlet with which they work, far more colleges chose campus closed circuit systems (40 percent) than public TV stations (26 percent), cable systems (11 percent), commercial TV stations (10 percent), or "other," including videotape (14 percent).

The sole or primary TV outlet with which a college works seems to affect the magnitude of televised instruction effort. Table 5 shows that colleges which work solely or primarily with public television stations and/or "other" distribution outlets (such as ITFS, videotape systems) tend to offer more courses per year than those which operate solely or primarily with commercial TV stations, campus closed circuit systems or cable TV systems. Reported enrollments in courses by

Table 4

Uses of Various Types of TV Outlets for Instruction by Two-Year Colleges, 1978-79
(Asked of all respondents using television for instruction—N = 706)

Type of Outlet	Percent Making Any Use of Outlet*	Percent Making Sole or Primary Use of Outlet
Public TV station	57	26
Commercial TV station	30	10
Cable system	34	11
Campus closed circuit system	58	40
Other**	22	14

*Multiple responses were permitted, so column total exceeds 100 percent.
**Videotape was most often cited as the "other" type of outlet, other types included satellite distribution systems, instructional television fixed service (ITFS) community agencies, public libraries, etc.

Table 5

Effects of Type of TV Outlet on Number of Courses and Number of Enrollments, 1978-79
(Asked of all respondents offering courses over television—N = 349)

		Sole or Primary TV Outlet				
	Total	Public TV Station	Commercial TV Station	Cable System	Campus Closed-Circuit System	Other
Average number of courses offered over television during 1978-79	6	7	6	5	6	
Average number of students enrolled in those courses	502	861	569	223	236	25

television are highest in colleges which function solely or primarily with public TV stations and lowest in colleges which work only or mostly with cable TV systems, campus closed circuit systems and/or "other" distribution outlets.

Variety of Services

Two-year colleges which used television for instruction in 1978–79 have been working with their sole or primary television outlet from one to 20 years, with a mean of six years and a median of five years.

The types of services provided by the college and the TV outlet vary widely. Table 6 shows that the single statement which seems to be most characteristic of the relationship between the college and the television outlet is that the "outlet airs programs acquired by the college" (41 percent). However, this is not an exclusive or singular characteristic. For instance, almost as many colleges (32 percent) indicated that the "outlet airs programs produced by the college." In each of these respects, the college seems to play an initiating and active role in the process. For one of four colleges (24 percent), however, the role is more passive: the "outlet airs programs it selects

Table 6

Relationships Between Two-Year Colleges Using Television for Instruction and Television Outlets, 1978-79
(Asked of all respondents using television for instruction—N = 706)

Characteristic	Percent
Outlet airs programs *acquired* by college	4
Outlet airs programs *produced* by college	3
Outlet airs programs it selects and lets college offer them for credit	2
College produces programs using outlet facilities	2
Outlet provides promotion time for instructional programs	2
College and outlet co-produce programs	2
Outlet acquires programs on behalf of college	2
Outlet provides college with preview facilities and time	2
Outlet provides college with dubbing services	1
Outlet provides college (or student directly) with support materials (e.g., study guides)	1
Outlet provides other services to college or students	1

*Multiple responses were permitted, so column total exceed 100 percent

Table 7

Financial Relationships Between Two-Year Colleges and the Television Outlets, 1978-79
(Asked of all respondents offering courses over television—N = 349)

Number of colleges offering courses over television in 1978-79	349
Number (percent) for whom television outlet provides free air time	279 (80 percent)
Number reporting costs of leasing air time	50
Average reported hourly costs to lease air time	$125
Number reporting costs of leasing production facilities	15
Average reported hourly costs to lease production facilities	$107

and lets the college offer them for credit." In about as many cases (24 percent), the college produces programs using the facilities of the television outlet. What emerges from looking at Table 6 is a sense that there is no one pattern of how two-year colleges function with television outlets.

It is clear, however, that for many colleges the relationship involves more than the broadcast of courses.

In the case of the financial relationship between two-year colleges and the television outlets, the pattern is somewhat more consistent but certainly not unanimous. (See Table 7.) In the case of the 349 colleges which offered total courses by television in 1978–79, at least 80 percent received free air time from the television outlets. Those which had to pay for *air time* paid an average* of $125 per hour. (The range was from $15 to $357.)

Only 15 colleges indicated that they leased *production facilities* from the television outlet. They paid an average* of $107 per hour for the production facilities. (The range was from $18 to $225.)

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*Because the number of colleges supplying data for the air time and production facilities cost questions is so small and the ranges are so great, the averages are less stable than most other data contained in this report and should be quoted with caution.

Table 8

Effects of Types of Television Outlet on Relationships Between Two-Year Colleges Using Television for Instruction and Television Outlets with which They Work, 1978-79
(Asked of all respondents using television for instruction—N = 706)*

		Sole or Primary TV Outlet				
Characteristic	Total (706)	Public TV Station (182)	Commercial TV Station (70)	Cable System (75)	Campus Closed Circuit System (280)	Other (99)
	(pct.)	(pct.)	(pct.)	(pct.)	(pct.)	(pct.)
Outlet airs programs acquired by college	41	45	42	54	40	28
Outlet airs programs produced by college	32	20	23	45	41	24
Outlet airs programs it selects and lets college offer them for credit	24	51	24	16	12	16
College produces programs using outlet facilities	24	14	16	31	32	18
Outlet provides promotion time for instructional programs	22	36	32	31	15	6
College and outlet co-produce programs	21	17	21	21	26	13
Outlet acquires programs on behalf of college	20	29	8	7	21	18
Outlet provides college with preview facilities and time	20	33	8	6	22	10
Outlet provides college with dubbing services	19	26	13	4	24	7
Outlet provides college (or student directly) with support materials (e.g., study guides)	14	17	8	6	15	17
Outlet provides other services to college or students	19	18	26	20	18	17

*Multiple responses were permitted, so column totals exceed 100 percent.

Relationships between two-year colleges and the television outlets with which they cooperate might vary depending on the type of outlet, e.g., public TV station vs. campus closed circuit system. Therefore, the data were analyzed further to probe those possible differences. (See Table 8.)

There were few surprises. Public television stations play a more active role than do other types of television outlets in all respects except production. In the case of production, the campus closed circuit system and cable system function most closely with the colleges. Colleges which operate mainly with cable and campus closed circuit systems are twice as likely to have TV outlet production facilities available compared to colleges which work mainly with public and commercial television stations. Programs *produced* by the college are twice as likely to be shown on cable or campus closed circuit systems as they are on public or commercial TV stations.

Table 8 provides the reader with a good idea of the roles and relationships of colleges and television outlets.

Table 9

Two-Year College Participation in Television Consortia, 1978-79
(Asked of all respondents using television for instruction—N = 705)

		Sole or Primary TV Outlet				
	Total (706)	Public TV Station (182)	Commercial TV Station (70)	Cable System (75)	Campus Closed Circuit System (280)	Other (99)
	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
College is member of consortium offering or producing telecourses	41	61	63	35	27	29

TV Consortia

More than four of ten (41 percent) two-year colleges which use television for instruction reported that they are members of a consortium of colleges offering or producing televised courses. (See Table 9.) This is especially true in the case of colleges which work solely or primarily with commercial television stations (63 percent) and public television stations (61 percent.) The reasons for this relatively high participation in consortia deserve further exploration. It might be found that some view consortium participation a convenient way to aggregate relatively small numbers of students into an economically feasible base for offering telecourses.

Factors Contributing to Use

Based on information received from persons involved in the use of television at the higher education level, a list of nine items which were thought to affect the use of television for instruction was constructed. All respondents were asked to indicate which of the nine factors had contributed to or hindered the use of television for instruction at their institutions. They were free to check as many or few factors as appropriate, either as contributors or hindrances.

This questionnaire item proved to be a very powerful one. Columns A and B in Table 10 show which of the nine factors were reported to be most important either as contributing to or constraining the use of television. Furthermore, by adding column C and column B for each factor, the overall importance (column C) of the factor can be assessed.

Table 10 shows that most of the nine factors were cited most often as being positive (contributors) rather than negative (hindrances). The two exceptions were the ability of the institution to provide necessary support for the use of television, and the time blocks available for airing instructional programs. They were cited more often as negative factors.

The nine factors seem to fall along a spectrum: at one end are two which are important to many respondents; at the other end are two which are important to relatively few respondents; and in the middle are five which are important to from 35 percent to 57 percent of the respondents.

The two factors which seem to have the most overall importance (institutional ability to support the use of TV and faculty member support) had large numbers of respondents citing them as contributors and an almost equally large number citing them as hindrances. This would seem to indicate that these are critical factors in the successful use of telecourses.

Table 10

Factors Which Contribute to or Hinder the Use of Television for Instruction, 1978-79
(Asked of all respondents—N = 1088)

Factor	A As a Contributor (percent)	B As a Hindrance (percent)	C Overall Importance (percent)
This institution (is / is not) readily able to provide necessary support services (e.g., faculty contact, flexible registration procedures, money).	30	35	65
Our faculty members (are / are not) sympathetic to the use of television for instruction	33	30	63
There (are / are not) courses available which meet the academic needs and standards of this institution.	34	23	57
Desirable blocks of time (are / are not) available for airing instructional programs.	21	26	47
Owners of the TV outlet(s) (are / are not) sympathetic to this institution's goals for television use.	28	12	40
Program schedules (are / are not) confirmed and announced far enough in advance of air date.	22	15	37
Print materials designed to accompany televised courses (are / are not) available.	26	9	35
The TV outlet(s) (are / are not) consistent in the airing of tapes (e.g., programs aired in incorrect order, infrequent preemption).	20	7	27
The TV outlet(s) (are / are not) consistent in handling tapes properly (e.g., mishandling, damage, and loss of tape are rare).	20	5	25

At the other end of the spectrum, relatively few respondents cited handling or airing of the tapes as important. Of those who did, most cited them as positive. This seems to indicate that the handling and airing of the tapes is certainly not a problem for most two-year colleges.

In the middle of the spectrum were five factors which are important to one third to one half of the respondents in varying degrees of intensity. About one third cited availability of appropriate courses, i.e., which meet the academic needs and standards of the institution, as a contributor but approximately one fourth cited the lack of availability of appropriate courses as a hindrance.

Twenty-one (21) percent of the respondents saw the available time blocks as a positive factor, while 26 percent saw them as a negative factor. The advanced scheduling and announcing of program schedules were viewed as a positive factor by 22 percent of the respondents and a negative factor by 15 percent. The availability of print materials was important to more than one out of three respondents, mostly as a positive factor.

The data were further analyzed to see whether respondents who were currently using television for instruction viewed the nine factors differently than those who were not using television at all or were using it only for non-instructional purposes. In general, the instructional users viewed the nine factors more positively than did the non-instructional users or the non-users. For instance, 37 percent of the instructional users saw the TV outlet's appreciation of the institution's goals for television use as a contributing factor, while only nine percent of the non-users saw that as a positive factor. (See Table 11.)

Table 11

Comparison of Reactions to Use Factors by Instructional Users and Non-Users / Non-Instructional Users, 1978-79
(Asked of all respondents—N = 1088)

Factor	Instructional Users (706)	Non-users / Non-Instructional Users (382)
	(percent	(percent)
• This institution (is / is not) readily able to provide necessary support services, e.g., faculty contact, flexible registration procedures, money.		
Overall Importance	65	63
As a Contributor	37	13
As a Hindrance	28	50
• Our faculty members (are / are not) sympathetic to the use of television for instruction		
Overall Importance	71	43
As a Contributor	41	14
As a Hindrance	30	29
• There (are / are not) courses available which meet the academic needs and standards of this institution.		
Overall Importance	66	40
As a Contributor	43	15
As a Hindrance	23	25
• Desirable blocks of time (are / are not) available for airing instructional programs.		
Overall Importance	54	29
As a Contributor	25	10
As a Hindrance	29	19
• Owners of the TV outlet(s) (are / are not) sympathetic to this institution's goals for television use.		
Overall Importance	48	23
As a Contributor	37	9
As a Hindrance	11	14
• Program schedules (are / are not) confirmed and announced far enough in advance of air date.		
Overall Importance	46	16
As a Contributor	28	7
As a Hindrance	18	9
• Print materials designed to accompany televised courses (are / are not) available.		
Overall Importance	43	16
As a Contributor	33	9
As a Hindrance	10	7

27

Table 11—*Continued*

Factor	Instructional Users (706)	Non-users / Non-Instructional Users (382)
• The TV outlet(s) (are / are not) consistent in the airing of tapes (e.g., programs aired in correct order, infrequent preemption).		
Overall Importance	34	11
As a Contributor	26	6
As a Hindrance	8	5
• The TV outlet(s) (are / are not) consistent in handling tapes properly (e.g., mishandling, damage, and loss of tape are rare).		
Overall Importance	33	11
As a Contributor	26	6
As a Hindrance	5	5

The major hindrances to their use of television for instruction cited by non-users and non-instructional users were: the institution is not readily able to supply support services (50 percent); faculty members are not sympathetic to the use of television for instruction (29 percent); there are not courses available which meet the academic needs and standards of the institution (25 percent).

Future Uses of Television

Those institutions which are not now using television for instruction were asked whether they had ever used it in the past and whether they planned to use it in the future. Forty-three (43) percent indicated that they had used television for instruction in the past. Fifty-one (51) percent reported that they plan to use it in the future. Furthermore, of all those which are not now using television for instruction but have used it in the past, 79 percent plan to use it again in the future. Of all those which have not used television for instruction in the past, 34 percent plan to use it in the future.

This seems to indicate that some two-year colleges have only temporarily suspended their use of television for instruction. Unfortunately, reasons for the suspension cannot be determined from the data from this study. On the other hand, many two-year colleges are planning to use television for instruction for the first time. It is not possible to determine for certain from this study how new these plans are or why, if they are not new, they have not been implemented sooner. As mentioned above, however, the current non-users of television indicated that the most common deterrents to their use of television for instruction were lack of institutional support, faculty commitment and appropriate televised courses. It can only be assumed at this point that these are at least high on the list of reasons for lack of adoption of television for instruction at those institutions.

One final indication of the strong interest in the use of television for instruction by two-year colleges is the large positive response (49 percent) to the question, "Is your institution interested in receiving technical assistance from AACJC in utilizing television for instruction?"

Article 3

"What Is a Telecourse?"

by
James J. Zigerell

The term "telecourse" is a recent one and is intended to distinguish what has established itself as a distinctive method of instructional delivery from what are loosely called "TV courses" or "televised courses." A telecourse is not just a sequence of instructional television programs supplemented by a textbook and other readings. Nor is it simply an illustrated correspondence course although some telecourses require a good deal of correspondence and the pictures, or video, serve, among other functions, that of pacing the student's progress. Nor is a telecourse a series of videotaped classroom lecture-demonstrations, no matter how effective such performances can be when presented by a gifted teacher. (Some readers will recall a professor-performer like Frank Baxter, who introduced thousands of TV viewers to Shakespeare in the 50's.) Rather, the producers of telecourses deliberately exploit the distinctive multisensory presentational properties of the TV medium, taking advantage of all the possibilities for on-site filming, creative editing, and studio enhancement.

Masterful television presentation alone, however, is not enough. The first-rate PBS series, *Nova*, for example, is not a telecourse in our sense. To make it one—which has often been suggested—we would have to combine and supplement the discrete program units with printed matter and organize them so as to achieve a set of definable and measurable instructional goals. We would have to devise a study guide for the credit student, match readings to the TV programs and study units, write examinations and progress tests, suggest kinds of field trips, devise exercises calling for controlled observations and problem solving, and create home laboratory activities. This would satisfy what Dean Tom Gripp, a director of telecourse development at Coast Community College District, insists be one of distinguishing marks of a telecourse: namely, that it be an integrated system of instruction, employing both video and print media. The key, of course, is integrating the elements. Combining elements into an integral whole, is not, as telecourse producers freely admit, an easy task.

At this point, we should pause to recognize an irony and anticipate a possible objection to the conditions we have implied are prerequisite to acceptance of telecourses. The most popular by far of recent courses offered on television, *The Long Search, Classic Theater, The Ascent of Man,* are in light of our definition, not really TV courses. The programs, which present television with its best foot forward as an educative and intellectually stimulating medium, were broadcast over the PBS network at times when millions could watch. As a result, well over a hundred thousand

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From James J. Zigerell, "Producing Telecourses for a National Market: A Background Paper," in *Organizing Telecourse Users: A Roundtable Discussion*, November 3, 1980, pp. 1–21. Used by permission of American Association of Community and Junior Colleges.

viewers enrolled for college credit in institutions that offered the series as credit courses once they were supplemented by print. The print materials, unfortunately for the credit viewer, were prepared after the video programs were written and produced. That is, the video content had been determined without regard to formal instructional presentation. Useful as they are, the print materials at times appear an afterthought, with the primary print references, the text written by Jacob Bronowski or Kenneth Clark, little more than readable and well illustrated transcripts of program narrative. Collections of additional readings had to be gathered together hastily by people who had had no contact with the program content designers. Thus they strike some as snippets that do not always allow for investigation in any depth. (Appropriately enough, courses of this kind are called "wrap-arounds," since the print materials prepared later are wrapped around a video series produced for a general viewing audience.)

Besides "telecourses," as we are defining them (most produced by two-year community colleges to date), and the "wrap-around" courses, there are video courses produced for audiences with highly specialized and narrow interests; e.g., courses in continuing professional development for teachers, physicians, dentists, nurses; courses for insurance and real estate brokers, technicians, et al; courses in developmental and remedial-level reading and computational skills; courses to prepare adults for high school equivalency tests. Our concern in this paper, however, is with telecourses designed and produced to be used at the lower-division college level as credit offerings in core general education areas or in high-demand and elective and occupational areas.

It should be noted, too, that the interest of four-year colleges and universities is growing in some of the community-college produced telecourses, because the telecourses are useful in reaching out to older learners who become more attractive as enrollments of students of conventional college age decline, especially in liberal studies curricula. The Maryland National University Consortium, which will make British Open University video-related courses available to American students through participating local institutions, and the Wayne State Weekend Studies project, which, aided by federal funding is now spreading to a consortium of colleges, are good examples of this lively interest in TV and TV-related courses at the university level. Both the programs are bachelor's degree-oriented.

Enough students have already enrolled in telecourses as defined above to enable producers and users to have a fairly firm "fix" on the characteristics of the audience for them, though the community-college producers are the first to admit that much more research into audiences, their special characteristics, and the reasons for their failure or success is needed. Interestingly enough, the profile of the "distant learner" (to use British educators' term) who succeeds in telecourses has changed little since the '60's and early '70's, when Chicago's TV College, among others, conducted a series of studies. The early findings in Chicago, for example, were again corroborated by the recently completed CPB-funded Station-College Executive Project in Adult Learning (SCEPAL) project. The informative final SCEPAL report, entitled *Telecourses: Reflections '80*, describes a telecourse student as follows:

> At the two-year college level, the "typical" telecourse student tends to be slightly older than on-campus students (29 to 31), is more apt to be female than male, is in a middle to upper income bracket, is most likely studying part time, is employed or with little children, and has had some college. Up to 70% of telecourse students at this level take on-campus courses as well as telecourses (p. 4).

It should be noted that among those surveyed were a goodly number of students living in more affluent parts of Southern California and in the Dallas County Community College District, which has an unusually high proportion of students who take conventional college courses while they take telecourses. They may distort the outlines a bit. But anyone who has worked with telecourses in regions where there is a large enough population base to allow for the enrollment of a sizable number of credit students can refine the above profile. The successful student is a mature adult, credentials-minded, career-oriented, and highly motivated. In short, he or she displays a lower middle-class composite of traits. In passing, we should note that the producer interested in designing telecourses of the kind now finding the widest use—usually revolving around thirty, thirty-minute video programs—keeps this profile in mind. If he takes as his target audience, for example, people without proficiencies in basic study skills whose previous school experience has been unproductive and frustrating, he foredooms himself to failure and a short-lived career, unless he adjusts his overall course design to a different profile.

There is, of course, a hard question to be raised at this point. How many people are there in the general population willing to enroll in telecourses, and, once enrolled, capable of profiting from such study? And there is a corollary consideration: can we assume that the number of candidates for such study will remain steady, year after year, and that the participants will come back to telecourses, term after term?

As for the last question, experience so far is not encouraging. Extensive users of telecourses report that the largest proportion of telecourse students are first-time enrollees. As we shall note again later, this is a clear message to producers that, given the student interest in credentialing, telecourses can not be planned as single units, but, rather, as parts of sequences that lead to significant credentialing within a reasonable time. As for the first question, the size of the potential audience for distance learning, we have recent data collected in numerous surveys conducted by the University of Mid-America and others. To the surprise of no one actively involved in instructional television, expensive Nielsen-type investigations disclose that some two to five percent of general population samples indicate they would take courses on television, the percentage within range increasing for courses with a more strictly "adult education" appeal—sketching, gardening, money management, etc.

Yet these are not grounds for pessimism. The AACJC Task Force on the Uses of Mass Media for Learning, now numbers sixteen institutional and consortial members. Of the sixteen, about half have successful experience in producing telecourses for national distribution; several have established themselves as long-term successful producers with a growing and faithful clientele. A growing number of community colleges enroll enough students in telecourses year after year to make offering them economically feasible. Some larger districts—Chicago, Dallas, the Task Force consortia—count their enrollments in the thousands every year.

We must always keep in mind, as has already been noted, that even though the telecourse audience is made up of many older adults who study at a distance and seldom appear on campus, more and more students each year, for reasons of convenience, are combining a telecourse or two with programs of conventional on-campus classes. As cable TV penetrates more American homes, and as the fuel for our cars becomes scarcer and even more costly, we can expect to find more students cutting down on travel by watching classes on TV sets in their home one or two days each week.

The SCEPAL report to which we have already referred attributes the appeal of telecourses to five main "factors": 1) a student's vocational interest; 2) degree requirements; 3) the presence on camera of a well-known personality; 4) cost; and 5) convenience. This conclusion, despite the lack of parallelism among the factors, is true in a rough-and-ready way. But the prospective producer of telecourses should not conclude that a business course required of all students seeking degrees in management, presented by a well-known actor persuasive enough to make the viewer suspend his disbelief and accept him as a management authority, will invariably enroll a hundred students in a signal area with a population, say, of a half million. Unfortunately, as the producer-colleges who are members of the AACJC Task Force will agree, this is hardly the case. For one thing, the producer college has no control over the tuition levied by a user college, the fourth of the SCEPAL factors. Nor does it have any control over what time a PBS station in Denver or Hartford, or even a cable system in Dubuque, will air a program—if, indeed, it will at all. As for the other "factors," the producer does exert control over them, complex as they are.

How Many and What Kinds of Telecourses Are Needed?

One does not have to be a specialist to recognize that basic to effective merchandising is an extensive and varied inventory of items to sell. The stock of merchandise must be regularly replenished and the displays redesigned. During the past twenty-five years, and even much more recently, several promising ITV projects have come a cropper simply because they lacked an inventory of courses sufficient both to meeting student demands and recruiting a stream of new students term after term.

This is not the time to name names. But there is a valuable lesson for telecourse producers to learn from the longevity of the Chicago TV College. The video programs of the courses presented during its high point of credit enrollments from the late '50's through the '60's were rough-cut, indeed, at times, little more than a single camera focused on a "talking face" professor standing at a chalk board. Nonetheless, enrollments remained consistently high from year to year because the courses offered and rotated at three or four semester intervals satisfied core curriculum requirements and appealed to common occupational interests. Even though only relatively few—some 500—completed an entire A. A. program on TV, many who enrolled completed shorter sequences, usually twelve to fifteen credit hours, that they eventually transferred to conventional programs. Surveys conducted disclosed, in fact, that every year as many as 20% of the graduates of the City Colleges of Chicago, of which TV College is an extension, had earned, on an average, fifteen hours on their required sixty credit hours via TV—usually before transferring to one of the on-campus programs.

Are telecourse producers now responding to this demand for a full range of courses that appeal to student need? The answer is that they are now attending to what the data tell them, making educated guesses as to what particular courses in high-enrollment core areas will prove most appealing and least emphemeral, and proceeding on the basis of well informed hunches as to what general-interest courses will find markets. They have learned from the experience of others that a production, no matter how spectacular, that calls attention to itself only as a spectacle, is not enough; they have also learned that, painful though the lesson may be, it is even unwise to accept support for the production of courses that appeal only to narrow and usually short-lived interests.

As long ago as seven or eight years, the major two-year college producers began, in an informal way, to identify high-demand curricular areas in which there can be presumed a need for telecourses. The Task Force, which has been in existence for some three years, now serves as a useful agency wherein such discussions encourage planning on a cooperative basis. Such discussions, above all, have discouraged what has been a bane of telecourse production, namely wasteful duplication of effort. Too often, for example, several institutions were producing courses in child development and consumer economics.

Planning for core general studies courses is not simple, but it is far less tricky than planning for general interest courses. Most lower-division curricula still require courses in the humanities, the social sciences, the sciences and mathematics. Many require, or recommend just short of requiring, specific courses such as American history, economics, or political science.

An examination of the *Mass Media Colleges Catalog*, published and kept up to date by the AACJC Task Force, discloses that enough courses of market-tested acceptability now exist to satisfy common lower-division core requirements. Some areas even boast an embarrassment of riches, as for example, in the humanities, where there are four or five imaginative and well-produced courses available. A few of the areas, mathematics and the physical sciences, in particular, are not so well served.

Although the number of available courses in the humanities may suggest the wasteful overlap of effort just deplored, they do, in fact, through their different emphases and approaches, provide additional resources for users, particularly community college users. With the ever-mounting emphasis on occupation and career education, there has been a reduction of general studies in two-year curricula. Whereas fifteen years ago, half a student's course work in a technical program might have been in general education, nowadays that requirement has been halved at least, and in some shorter sequences, cut even more. Given only a three-credit hour humanities requirement, a serious question arises as to how a student can best satisfy this modest demand—by selecting any course that catches his fancy or fits into a convenient time slot, or by taking a specially designed course that cuts across disciplines, stresses human values, and emphasizes the interrelatedness of all knowledge? Popular telecourses like Miami's *The Art of Being Human, American Government,* and *The Humanities Through the Arts* are encouraging curriculum rethinking in user institutions, whether the rethinking has to do with the place of general education in the total curriculum or with instructional approaches and techniques.

Duplication of effort is still with us, nonetheless. But producers are recognizing more and more the benefits of a division of effort. For example, among subjects presently considered as prime areas for telecourse production are sociology and economics. From time to time, a number of Task Force members have expressed interest in undertaking production. But Miami-Dade and Dallas have been allowed, in effect, to stake their claims. Miami plans to design and produce economics on a collaborative basis, with several Task Force members pledging money and faculty expertise to the support of the project; Dallas, having already generated considerable momentum on its own, will act as sole producer of sociology.

Both colleges have won national and international reputations as producers of high-quality video programs, programs that not infrequently rival in general-audience appeal cultural series shown on PBS. The former owns and maintains a first-rate production facility, permanently staffed by professionals well trained in television techniques; the latter has regular access, on a contractual basis, to the local PTV station's facilities and personnel.

This agreement by other capable producers of the telecourses in question to leave the field to Miami and Dallas amounts not only to tacit endorsement of the efforts but also to *de facto* precommitment to use of the two series. Likewise, a recent implied agreement on the part of Task Force producer-members to leave production of a basic electricity series aimed at a pre-college level to the Milwaukee Area Technical College betokens the intention of other members to adopt the series, since there has been strong consensus over the past few years that such a telecourse designed for a different kind of target audience would fill a need.

Selection of courses in areas of general interest—e.g., *Free Hand Sketching, Oil Painting Techniques, Photography, Home Gardener*—is also based, to large degree, on data as to student preferences gathered over the years, and on hunches as to the audience appeal of a performer or teacher who happens to be available locally. Enrollment figures and information collected in questionnaires indicate that adults like self-help and leisure-time enrichment courses—consumerism, personal finance, home design, the arts. The TV medium, with its magnification properties, its possibilities for on-site filming and for bringing the outside world into the studio, lends itself naturally to such programming.

Finding a credit-student market for general-interest courses is risky. As we noted earlier, credit students invest time and efforts in courses because they are in quest of credentials, want to complete requirements as quickly as possible on the way to a final goal. For example, studies of credit enrollments in *Ascent of Man* reveal what any experienced ITV practitioner would have predicted. Whenever the course is offered under the catalog designation of a required or highly recommended course—Introduction to the Humanities, for example—it attracts sizable numbers of credit students; whenever it is listed as a more exotic general-interest elective in the college catalog—history or science and technology, say—it enrolls far fewer students (see M. E. Hoachlander, *The Ascent of Man: A Multiple of Uses*, Corporation for Public Broadcasting, 1977).

On the other hand, well produced general interest courses appeal to public and commercial broadcasters as programs for general audiences. Even in PBS markets in cities like New York, Chicago, and Boston, where normally one expects to find only mild interest in airing college-credit telecourses, series like Coast Community College District's *Oil Painting Techniques* and *Home Gardener* are broadcast as part of the weekday or Saturday early evening schedule. This means, naturally, that a user institution in the area has a good chance of reaching a large audience, and consequently, of enrolling a respectable number of credit students.

It should be noted, though we have not yet discussed costs of production, that the expenses of designing and producing telecourses that appeal to leisure or self-help interests usually are significantly below those incurred in producing general education series. The courses often revolve around a single expert or local personality and do not need the complicated apparatus of instructional support so necessary to a core course in science or the humanities.

We can conclude this section by noting that Task Force members are currently very much interested in bringing about the creation of some mechanism or agency to make it possible for men and women all over the nation to earn the A. A. degree and other lower-division credentials in alternative, technology-based programs. As indicated, there already exists a broad inventory of market-tested telecourses in general education and general interest areas. It certainly would be to the benefit of telecourse users and producers alike if men and women in all regions of the country were able to complete A. A.-oriented programs, in part or in whole, by enrolling in telecourses. This would not entail the creation of new institutions. It could result through a coordination of effort within the various regions of the nation served by public community colleges, commercial and public TV stations, and cable TV systems. All the regions, too, have ready access to some or all of the newer video technologies—e.g., videocassettes, videodiscs—that permit students to schedule "broadcasts" at times that suit their convenience. Such a development would add a final chapter to the realization of equal access to postsecondary education for all citizens.

How Are Telecourses Designed?

Once an institution has decided what is to be produced, the producer starts the lengthy and often tedious process of making a telecourse. Designing a course in general education or in high-demand occupational area can, as indicated, be particularly difficult. Though the process varies from producer to producer and is, inevitably, more complex if it is carried on by institutions working in collaboration, the major steps remain the same. Several of the producers—Dallas and Coast, for example—have published guidelines which outline the steps essential to the design process.

A first element, of course, is enough time. It is not unusual to need two years or more to see a telecourse from the early steps of planning and conceptualizing, through the sketching out of program content and topic treatment, through scripting programs and preparing associated study materials, through final studio production and editing. This much time and more was required, for example, for a telecourse like the recent *American Government* produced by Dallas with the collaboration of Chicago, Coast, and Tarrant County. Just the problem of getting together members of a faculty advisory team separated by long distances can be a formidable one.

Once the telecourse to be designed has been determined, a course content team is formed to work with instructional design and production specialists. Someone is named project leader, a person with strong qualifications in the subject matter of the course who maintains liaison with the technical production staff and coordinates the overall effort. (The position of the instructional designer can be a key one in the process and deserves a special word in passing. He or she is a relatively new professional in education, trained to define attainable learning goals, match appropriate instructional strategies and procedures, multi-media-based and traditional, to the attainment of the goals, and design evaluation techniques.) From time to time the help of outside consultants, usually university specialists in the academic discipline involved, is sought, so as to insure scholarly quality.

Total planning can be expensive and complex, not to mention time-consuming, as already indicated—especially if the effort is a multi-institutional one. The ACCESS Corporation, a not-for-profit group which has designed and produced six video-based courses (five of them slide/sound and one full-motion video), is made up of six community colleges spread around the country. Putting together a team made up of a faculty member from each of the colleges is difficult and expensive, and involves real problems of logistics as well. The advantages to the user, however, can far outweigh the difficulties of the producer. The course resulting reflects the approaches and emphases of a representative group of colleges.

Since students, both young and old, expect from instructional TV the same sophisticated production techniques they have been accustomed to by commercial TV, once the advisory team has determined the objectives and content to be covered in the programs and has outlined how the content can best be treated, professional writers and producer-directors must begin the scripting and the visual realization. Studio production, filming, graphics design, clearing materials for use on the air—all of this, often a lengthy process, begins. Concurrently, there must go on the planning and designing of course study materials. Some of the two-year college producers even provide special utilization manuals for user institutions, as well, a practice that can pay dividends in that it eases fears of the administrators and faculty coordinating and managing outside uses.

There is neither the need nor the time to go into all the details of planning, designing, and producing telecourses. Enough has been said to make it clear that the effort can, indeed, seem a monumental one, particularly in a college where faculty and staff feel much more at home with the planning and design of traditional methods of instruction.

How Much Does It Cost to Produce a Telecourse?

This first thing to be said is that high-quality telecourses are not designed and produced on the cheap, nor, as we have seen, are they completed within the neat and manageable divisions of semesters and school years. No single institution on its own could justify an investment of the size required for producing a telecourse of the quality of Coast's *As Man Behaves* or The Maryland Center-Chicago TV College's *Of Earth and Man*, unless it has a reasonable expectation that its initial outlay for production can be recouped, in large part at least, by the lease or sale of the programs to other institutions.

Even when production costs are borne or shared by commercial organizations, with that organization reserving certain distribution and use rights—as is the case with some of the telecourse ventures of Coast, Northern Virginia Community College, and the Milwaukee-Area Technical College, to single out only several Task Force members—no institution on its own can risk taking on an expenditure of such magnitude without a genuine prospect of recovering some of the costs through outside uses.

It is hard to place a precise price tag on a college-produced telecourse. Many of the costs are intangible, in that they take the shape of services rendered by people already in the regular employ of the institution: administrators, TV and instructional design specialists, faculty members. Some producers own their production and broadcast facilities and thus make substantial "in-kind" contributions to design and production, services which it is difficult to translate into actual dollar equivalencies.

As indicated earlier, on occasion, a course with broad audience appeal that attracts large numbers of credit students as well can be produced for $50,000–$75,000, if it is a straightforward studio production requiring little, if any, location filming or editing, and revolves around a local "personality." Coast, for example, has had great success with art and personal finance courses produced at modest cost. They are technically uncomplicated productions, featuring bright local personalities who are experts in their fields. But, as a rule, a telecourse centering around thirty half-hour video programs (which, for reasons having to do with appeasing faculty and accrediting agencies by "equating" time spent viewing TV programs with time spent sitting in a classroom in a three-credit hour course, has become a "standard") cannot be produced for less than several hundred thousand dollars, even by institutions having their own production facilities and staffs. Some courses can run up to a million dollars, particularly if filming is done in far-flung places, rights to a good deal of existing film have to be acquired, professional theatrical groups must be engaged, and other rebroadcast and use rights must be negotiated. If we take five or six years as the normal life expectancy of a telecourse unrevised—which is a useful rule-of-thumb—we can easily appreciate that cost recovery through outside use is a matter of vital concern for the academic producer.

We can conclude this necessarily brief discussion of cost by listing the major categories of expenditure in budgeting a telecourse production. Forming two basic divisions, of course, are those costs associated with content planning and design and those costs associated with the video production itself. Included in planning and design expenses are the costs of printed study materials, as well as costs of employing faculty advisors, instructional designers, and content consultants. Production-associated costs involve more than leasing studio facilities and the professional services or salaries for people already on staff. There is often payment for special services like animation, often payment in addition to that contracted for with a station or production house for special editing services. Considerable sums can be spent on researching film, photograph, and document

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archives, music collections, and the like, to locate materials that must be cleared for use in a production. Once such materials have been located, as indicated above, clearance fees, often sizable, must be paid. Finally, once costs for design and production have been met, there are still additional costs for promoting and distributing the product.

Enough has been said to indicate telecourse production can be expensive indeed. Even though ITV production budgets are not high by commercial standards—no college, for example, could handle the production budgets of *The Long Search* or the *Ascent of Man;* even though they were produced in Europe, where professional and other costs are significantly lower—they are high for non-profit public service institutions with little access to "risk" capital.

What Does the Future Look Like?

The reader has already inferred from what has been said that producers of college-credit telecourses for national distribution are handicapped by the fragmented and somewhat uncoordinated nature of their efforts, as well as from the inescapable fact that anything smacking of standardizing, or "pre-packaging" instruction, as more hostile observers might say, runs directly counter to the traditions and practices of U.S. higher education.

As for problems of fragmentation of effort: we have already noted that the two-year college producers who are members of the AACJC Task Force are now trying to eliminate duplication of labor and are planning future productions so as to provide men and women who must, or prefer, to study in technology-based programs with a full and articulated sequence of courses that lead to significant academic credentialing and personal and occupational improvement.

The Task Force as a whole is also interested in undertaking and encouraging its members and others to undertake continuing investigations of what teaching functions are best performed by the various components of telecourses, what courses learners want, and how they can learn best by telecourses. Data yielded will serve to guide producers as they plan curricula and design their courses.

The Task Force, too, plans to explore new models, or formats, for the credit telecourse. Some institutions complain that the standard thirty, thirty-minute video component is in some instances unnecessarily intensive, limits possibilities for local adaptation, and even tends to encourage student passivity. This format, of course, is not sacrosanct. As noted, it was "standardized" to allay the concerns of faculty and administrators about student "contact" hours in a non-traditional course. We now have learned that the telecourse is a distinctive learning experience, with distinctive delivery capabilities. There is no reason that for certain instructional purposes, fifteen one-hour programs, or fifteen half-hour programs, would be just as effective.

Much remains to be done. The Task Force as a group must continue exploring ways in which an inventory of high-quality video-based and video-related materials can be made available and kept up to date year after year. The answer may be—seems likely to be—the creation of some means, not a separate institution or an extension of an already existing institution, whereby students all over the nation can have ready access to high-grade technology-based instructional materials. There is currently discussion of an Open University of America that would act as an educational broker for adults who earn college credit in unconventional ways. It is a little hard to imagine, in the present climate, such an institution developing, and one can with justification ask if it is really necessary. But there is no reason institutions within the region of the country could not establish a flexible compact whereby they would agree to present telecourses regularly and schedule them so that they culminate in the associate degree. Such a compact, or series of compacts, would act as a further inducement to telecourse producers to plan their productions sequentially. After all, they would have some advance assurance of adoption and use.

The distribution capabilities of the satellite-based new educational/instruction service of the Public Broadcasting Service (PTV-3); the potential of the new video technologies, especially the videodisc; and the rapid growth of cable TV with its interactive capacities make the establishment of a comprehensive technology-based alternative to conventional postsecondary education more and more feasible. As usual, of course, the technology itself is far outpacing curriculum design and course production. The real challenge, it must be said once more, is for telecourse producers to insure that there is a steady flow of video-related materials to satisfy the already well-documented needs of learners.

For all this to come about there must be an uninterrupted flow of information and exchange of ideas between telecourse producers and telecourse users. The best example of such interaction comes when a committed telecourse user, with no aspirations to the status of telecourse producer, helps underwrite and supports someone else's production. Such active collaboration is one way of guaranteeing that the resulting product will be used outside the producing institution.

The ideal, ultimately, for the producer would be an arrangement like that whereby books at one time were—and still are on occasion—published, by advance subscription. This, roughly, is the procedure that supports the production of TV materials by the Agency for Instructional Television (AIT) of Bloomington, Indiana, an exemplary self-supporting organization that provides materials for use in grades K through 12. U.S. state and Canadian provincial education authorities review the agency's proposed TV-based projects with a view to prior approval and precommitment to use. The precommitment may take the form of actually helping underwrite production costs in accordance with a formula based on school populations within the states. Such commitments guarantee the producers the recovery of base costs. Leases and sales to others not pre-committed allow for the creation of a revolving fund to support overhead expenses and the costs of further curriculum planning.

Although it would be a boon to ITV producers, such an arrangement does not lend itself to the world of postsecondary education, where, as everyone knows, local autonomy in matter of curriculum is the rule. But this does not preclude exploring other avenues. Perhaps we can create agencies, or mechanisms, appropriate to the postsecondary community and its customs that will keep open channels of communication between producers and potential users before, during, and after the production/design process.

The signs are unmistakable that the market for college-credit telecourses is no will-o-the-wisp or enthusiast's pipe dream. The interest commercial publishers and distributors of film materials have shown in investing in telecourses is perhaps proof enough. What is an even surer sign, however, is the lasting size of the audience, even though courses have often been produced on a helter-skelter basis, without much regard for the demonstrated needs of students. Is it an unreasonable assumption that as our population grows older and the fuel crisis makes us less mobile, the market for off-campus education will grow?

This admittedly has been a cursory treatment of complicated issues. But if a reader takes away some notion of the problems the academic producer of telecourses for a national market encounters and feels, as a result, somewhat better prepared to discuss the matter of what part a telecourse-user institution should play in the whole planning process, its purpose will have been accomplished.

Article 4

"The History of Television and Radio in Continuing Education"

by
Leslie N. Purdy

The use of telecommunications in continuing higher education is now very extensive. Thousands of students every year continue their education via radio and television. Undergraduates take basic general education television courses on and off campus. Professionals receive continuing education credit from extension programs by television and radio. Adults watch cultural series on television and participate in related discussion groups. Some adults find television and radio a way to take courses for long-sought college degrees. As Zigerell (1979, p. 12) states, "Television is no longer on the fringe of higher education." The use of telecommunications is so vast and diverse that most educators find it difficult to see the total picture, to make generalizations, or to understand the significance of the activity. And the technological advances continue so rapidly that educators who have not experimented with educational telecommunications may wonder where and how to get involved.

The diversity of uses of telecommunications in the United States is the result of a relatively brief but rich history. Since the broadcast from the first radio station in 1917, educators have been speculating on and experimenting with media for educational purposes. The movement has at various times flourished, sputtered, languished, and been forgotten, only to reappear with new leadership and vision in a new institution. In 1934, one optimist exclaimed, "Television's place as an effective instrumentality in the educational system of the future is already assured" (Kurtz, 1959, quoted in Wood and Wylie, 1977, p. 2). Yet the struggles to set aside radio and television channels for public educational use had yet to occur. The decades since that statement was made have been filled with much activity as telecommunications advanced technologically, the balance between public and commercial control was established, and educational institutions watched and dabbled to see how they might participate.

Phase I: Early Developments

From 1920 to 1948, many of the basic dimensions of the telecommunications industry, such as the very existence of public radio and television, were being debated. The participants in the development included radio operators, university faculty and administrators, leaders of the fledgling educational radio organizations, and the federal government.

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Many of the early radio stations were located at and operated by universities. There are competing claims to being the first radio station on the air, but Wood and Wylie (1977) recognize as first the University of Wisconsin at Madison, broadcasting over its radio station 9XM in 1917. The first educational institution officially licensed to operate a radio station was the Latter Day Saints' University of Salt Lake City in 1921. Interest in radio often centered in the engineering departments of prominent universities, but there were many failures. Most of the early stations were on the air for less than three years. By 1936, a total of 202 broadcast licenses had been issued to educational institutions, but only thirty-eight educational radio stations were actually on the air (Wood and Wylie, 1977). The reasons for the failures include inadequate financing, considering broadcasting as an experiment rather than as a continuing venture, and competition and opposition from commercial radio interests. Perhaps most important was the lack of commitment by educational leaders to developing the medium for instructional purposes.

However, there were some significant achievements during these years that demonstrated the medium's potential. Schools "of the air" were established and run for several years by the Universities of Wisconsin, Kansas, Michigan, and Minnesota; Oregon State College; and the Ohio State superintendent of public instruction. The commercial networks also produced comparable programs, such as the CBS American School of the Air, which ran from 1930 to 1940.

Attempts were made to use video for educational purposes as early as the 1930s. The State University of Iowa at Iowa City is usually credited with being the first to broadcast educational television programs, starting with a program of violin music, a dialogue, and a lesson in freehand sketching on January 25, 1933 (Murphy and Gross, 1966; Wood and Wylie, 1977). By the 1940s, elementary and secondary schools were beginning to experiment with programs offered by commercial television stations. And, by 1948, there were at least eight colleges and universities producing or airing educational television materials.

Also during these early years the foundations were laid for professional associations concerned with educational telecommunications, several of which are continuing to provide leadership today. The Association for Educational Communications and Technology (AECT) grew out of three groups formed during the 1930s: the National Academy of Visual Instruction (NAVI) formed by the National Educational Association (NEA), the Visual Instruction Association of America, and NEA's Department of Visual Instruction. The Association of College and University Broadcasting Stations (ACUBS), formed in 1925, became the National Association of Educational Broadcasters (NAEB) in 1934. During these early years, NAEB helped to develop the complex arrangements of tape exchanges, video libraries, regional networks, and tape "bicycle" systems that are so much a part of the process of circulation and distribution of educational programming even today.

The major issue raised and debated through these years was the role of the federal government, first through the Federal Radio Commission, regarding standards and regulation of the industry. A basic question was whether public educational (usually synonymous terms) frequencies and stations should be provided for in the public interest.

The first request for reservations of educational radio channels was made in the 1930s. The Federal Communications Commission (FCC), established in 1934, was assigned to investigate setting aside nonprofit and noncommercial channels for educational use. Success came in 1938 with the establishment of five channels in the UHF (Ultra High Frequency) portion of the broadcasting spectrum for educational use. By the late 1940s, with extensive pressure from the growing number of educational broadcasters, the FCC issued the *Report and Order* freezing all action on station licenses and applications while it studied the issue. In 1952, the freeze was lifted; and a new table of assignments for stations was announced, with 2,053 television allocations, 242 of which were reserved for noncommercial purposes. In effect, this was the creation of a new category of television. Of the 242 educational reservations, 162 were in the UHF range and 80 were VHF (Very High Frequency) channels (Wood and Wylie, 1977). Without the awareness of the importance of such reservation by educational radio broadcasters and a few educators, we would probably not have the resources of public television and radio available today for educational purposes.

Phase II: Experiments with Educational Television—1950s and 1960s

With the lifting of the freeze, an era of rapid growth in the extent and quality of public and commercial television began. The 1950s saw television become a truly *mass* medium, though most Americans were probably aware only of the commercial options. In 1953, the first noncommercial TV station, KUHT/Houston, went on the air; and by 1962, there were seventy-four educational stations broadcasting.

The fifties also was a decade of significant experimentation by higher educational institutions with both closed (transmission systems in which only sets wired to a central engineering core can pick up the signal) and open-circuit television. The single most important source of funding for these experiments was the Ford Foundation, which had two major areas of interest—in-school instruction and continuing education. In 1951 the foundation established two agencies, the Fund for the Advancement of Education and the Fund for Adult Education, to work in each area. Both supported instructional television; the former supported some of the classic television teaching and research projects and the latter, the cause of public television itself. One of the first efforts of the Fund for Adult Education was to help persuade the FCC to reserve some educational television (ETV) channels for public educational television. It is difficult to find a figure for the total Ford Foundation support; but one source reports a "conservative estimate that since 1950, it [the foundation] has provided the ETV movement directly and indirectly with about $300 million" (Wood and Wylie, 1977).

For higher education, among the many important television experiments supported by the Fund for the Advancement of Education are the Chicago TV College, NBC's "Continental Classroom," Pennsylvania State University's use of television on campus, and the Midwest Program on Airborne Television Instruction (MPATI). The latter was a plan whereby a DC-6 aircraft broadcast two channels while circling a four-mile area. Instruction could be received in a one-hundred-fifty to two-hundred-mile radius, reaching parts of six states. The programs were cooperatively and expensively produced, but MPATI died in 1966. Some of the educational series produced by MPATI were used in other settings (Murphy and Gross, 1966).

The Chicago TV College, started in 1956 with a grant from the Fund for Advancement of Education, has been one of the most ambitious and successful continuing education television efforts to date. An accredited part of the Chicago City Colleges, Chicago TV College offered a wide variety of courses leading to the associate of arts degree. Zigerell and Chausow (1974, p. 11), summarizing the record of the college:

- over 150,000 individuals enrolled in televised courses
- of this total, some 80,000 students enrolled officially for college credit
- an average of 26 hours each week of broadcast instruction
- student retention averaging between 70 and 80 percent

- about 400 students awarded an AA degree for study entirely by television
- about 2,200 students graduated from City Colleges of Chicago with an AA degree, taking, on the average, one semester of their work by television

There was clearly an audience of adults who wanted an alternative to on-campus higher education, and students taking educational television courses received an education comparable to on-campus education. Extensive high-quality research was conducted on the experiment, providing valuable information about the students attracted to this form of education and the processes involved in producing and offering television courses.

But, as an administrator with TV College remind us, its problems as well as accomplishments need to be pondered by educators (Zigerell, 1979). For the first fifteen or sixteen years of its existence, TV College had both day and evening broadcast schedules on the city's public television station, plus its production facilities. In the early 1960s, station changes limited the broadcast time available to the college. For several years, the college broadcast courses on a commercial UHF channel early on weekdays and repeated them on Saturdays. The number of courses offered in any one semester was limited to four. Production also declined. Finally, reorganization of the two-year college system resulted in the television courses being administered by the City-Wide College, created in 1976. However, "despite low budget and 'talking face' productions, TV College has survived since 1956, serving close to 200,000 students, while other projects disappeared" (Zigerell, 1979, p. 3).

Another Ford Foundation supported project for higher education use of television was at Pennsylvania State University in 1956. Exploring the potential of closed-circuit use of television for on-campus instruction, the University had produced twenty-eight courses by 1966. Enrollment peaked at twenty thousand in 1962 and leveled to thirteen thousand in later years. Again, important findings concerning the viability of educational television for adults resulted even though the courses were rarely used at other institutions (Murphy and Gross, 1966).

Experimentation was widespread. Michigan State, American University, Western Reserve University, Iowa State, and others undertook experiments with instructional television. Other universities owned and operated television stations, such as the University of Washington's KCTS, which first began broadcasting television courses in 1955. Some of the early major university stations, such as KUON (Lincoln, the University of Nebraska) and WUNC (Chapel Hill, the University of North Carolina), also started in 1955, have become the center of major state networks and leaders in the continuing education television field.

Colleges and universities that did not own a station or a closed-circuit system had the opportunity to experiment with television courses when the commercial networks became interested in educational television. WCBS/New York first broadcast the "Sunrise Semester" series in comparative literature in 1957. By 1958, NBC had "Atomic Age Physics" on "Continental Classroom" over one hundred fifty network stations across the country (Murphy and Gross, 1966). Funded in part with a grant from the Ford Foundation, the series had high academic quality and accompanying support materials for students and local instructors. Over three hundred higher education institutions offered the course the first year and several other courses followed. NBC researchers estimated that four hundred thousand viewed the physics course and six hundred thousand tuned in to chemistry in the second year. The highest student enrollment for credit was five thousand (Carlisle, 1974). The series required heavy subsidy, however, and NBC dropped it a few seasons later. In 1963, CBS made "Sunrise Semester" available to its network stations and that series continues today. New York University and Bergen County Community College have been involved in the course design and production, and institutions across the country continue to rely on "Sunrise Semester" for inexpensive, widely available, and high-quality television courses for credit.

The excitement of experimentation gave way to disappointment due to the failure of instructional television to become established during these years. If schools did not own a broadcast facility, consistent availability of air time was a constant problem. One of the most promising of the college credit television ventures, the University of the Air of the State University of New York (SUNY), survived from 1966 to 1971. During those years, it enrolled about two thousand credit students in eight courses that it broadcast statewide. Its collapse was due in part to the fact that the network's transmitters were owned by community stations and "it was not long before the University of the Air found itself at the mercy of the community stations . . . whenever the questions of air time for college courses came up" (Carlisle, 1974, pp. 57–63; see also Zigerell, 1979).

Other constant problems for the early users of educational television were the lack of courseware and the wide variety in production, quality, and course format of the available series. Many producers often turned a television camera on an instructor in a studio set of a classroom in an effort to provide quickly produced programs at a relatively low cost. Summarizing the fifteen years of educational television since the establishment of noncommercial educational television stations in 1951, Murphy and Gross (1966, p. 10) observe, "The most conspicuous result of television teaching has been an incidental byproduct: The medium has displayed in public what had heretofore gone on behind too many closed classroom doors—uninspiring teaching." While television was being used to provide education, its unique characteristics as a medium were not being utilized. Most educational institutions found high-quality productions too expensive, but too few series that served the needs of more than one institution were being produced and distributed.

Thus by the early 1960s, many educators expressed disappointment in educational telecommunications. Although much was learned that was positive about educational television, the organizational arrangements did not yet exist to make it work and survive. As Zigerell (1979) and Carlisle (1974) observe, the early 1960s were the end of the pioneers and the trailblazers. Wood and Wylie (1977, p. 54) said 1962 to 1966 were years of "regrouping and professional introspection."

However, the groundwork was being laid for new efforts and larger utilization of the medium for continuing education. The Federal Educational Television Facilities Act of 1962 began to funnel money into building and equipping public television stations, extending their broadcast potential. The creation of the Great Plains Regional Instructional Library in 1963 provided the basis for a distribution system of programs and series that had continuing education potential. It was not long before telecommunications would be used for continuing education, but no longer on an experimental basis.

Phase III: Major Production and Use of Educational Telecommunications—1967 to 1979

In the last twelve years, the use of radio and television for continuing education has gone from an experimental to an established basis. The major accomplishments that have made this possible are:

- Creation of national public broadcasting systems for radio and television
- National broadcasting of several television series that provided excellent programming for hundreds of institutions to use for continuing education

- Rapid growth in production of high-quality courses by several "telecourse" producers
- Development of successful systems for distributing and offering telecourses, including cooperation between user stations and colleges as well as the creation of consortia.

National Broadcast System. While it is not possible to recount the details of the creation of the Corporation for Public Broadcasting (CPB), the Public Broadcasting System (PBS), or National Public Radio (NPR), it is useful to realize how recently they were created and to review their official mandates.

The Corporation for Public Broadcasting, the first of these institutions, was created by the Public Broadcasting Act of 1967. That act was rushed through Congress and signed by President Johnson in nine months. By 1968, CPB had its board and was beginning to function. CPB was charged with the "responsibility of assisting new stations in getting on the air, establishing one or more systems of interconnection, obtaining grants from federal and other sources, providing funds to support program production, making grants to stations to support local programming, and conducting research and training projects" (Wood and Wylie, 1977, p. 67). Thus, CPB was not itself a production or networking facility. Instead, another new entity was created to serve as the television network—the Public Broadcasting Service. Its functions were to select, schedule, and distribute programming through the widespread system of PBS stations. Thus, a nationwide system of public television came into being in October 1969, when PBS began operation.

Much of the public and legislative interest in television in the late 1960s was aroused by the report and recommendations of the Carnegie Corporation Commission on Educational Television, created in 1965. Its report, *Public Television: A Program for Action* (1967) has been an extremely influential document and many of its recommendations were incorporated into the Public Broadcasting Act of 1967. The Carnegie Commission's report actually introduced the phrase "public television" to emphasize the need for general enrichment, information, and classroom instruction.

The Carnegie Commission report did not mention radio. However, in the 1967 legislation, radio was made a partner of the federal support system. The CPB was given the task of developing national programs, arranging for interconnection, and dispensing operating funds for the radio system also. Thus, National Public Radio was created in 1971 as a public radio network which was a counterpart to PBS for television. It differed from PBS in that it could produce as well as distribute programs and could make some specific grants directly to public radio stations.

In addition to the creation of CPB, PBS, and NPR, another big boost to the cause of educational telecommunications came with the creation of the British Open University in 1969. Created as an alternative system for achieving a higher education degree, the Open University (OU) courses blended print, video, radio, and occasional campus visits designed to appeal to students unable to attend universities full time and "in residence." Starting out with an enrollment of forty thousand in 1971, it now enrolls about sixty-four thousand students throughout the United Kingdom, a limit set by the government (Zigerell, 1979). In addition to setting the precedent of using television as a crucial component of basic higher education courses, the OU has also distributed its course materials for use in this country. Adapting OU courses is not an easy task; however, some U.S. higher education institutions, including the Universities of Houston and Maryland, have invested considerable time and effort in adapting OU materials for their students (Carlisle, 1974).

National Telecourses. Starting in 1975 with the first broadcast of "The Ascent of Man" over PBS stations nationwide, several series that had excellent video and academic quality have been available for educational use. The success of these series in terms of both student enrollment and institutional adoptions has been startling. Print materials prepared by University Extension, U.C. San Diego and Miami-Dade Community College for two airings of "The Ascent of Man" were used by an estimated forty thousand students in four hundred and twenty institutions throughout the United States (Chamberlain, 1976, p. 181). Response to subsequent series has not equaled those figures but is, nonetheless, impressive. Courses based on "Classic Theatre: The Humanities in Drama" were taken by eleven thousand students in two hundred seventy-five institutions (Purdy and Icenogle, 1976), and fifteen thousand students enrolled in three hundred institutions took "The Adams Chronicles" for credit the first time it aired (Chamberlain, 1976). More recently, "The Age of Uncertainty" (1977), "The Long Search" (1978), and the first selection of "The Shakespeare Plays" (1979) continued demonstrating that high-quality series broadcast over PBS, when combined with appropriate, well-designed print materials, could provide relatively low cost courses for higher education institutions to offer for credit. They also provided ways for institutions to test systems for supporting telecourse students and to consider whether they wanted to get involved in the more costly option of leasing telecourses.

These national series also revealed many problems with this form of educational television. Enrollments from institution to institution and from first to second airings were not predictable; publishers experienced difficulty in meeting orders on time; and schools at times found themselves returning many books. Schools had difficulty getting crucial information concerning series content, exact broadcast dates and times, and nonbroadcast rights in time to make decisions, publish the information in catalogs, and release local publicity to attract enrollment. Station personnel often found themselves barraged with inquiries not only from students but also from school officials, who had little understanding of how PBS was structured, how scheduling decisions were made, costs of air time, and questions about the broadcast of the series itself. Also, unless the series was available for nonbroadcast use and the educational institution could afford the cost of purchasing the rights, the course was not incorporated into the ongoing institutional curricula.

Telecourse Producers. Even if a college or university offered courses around every national series available, it would probably only have one or two television courses a year. But some educational institutions were not prepared to relegate television to esoteric random educational experiences for students. They felt the medium could be used to serve the needs of degree-oriented students of all ages as well as adults wanting continuing education in special subjects. Thus in the early 1960s, several institutions began producing telecourses that were visually more exciting than the "talking head" variety from "Sunrise Semester" or earlier closed-circuit television efforts and that could be used by any educational institution in the country. In 1974, Miami-Dade Community College District released "Man and the Environment," an ecology series with thirty half-hour television programs, a text, study guide, and testing materials. The same year, the Coast Community College District offered an anthropology series entitled "Dimensions in Culture" in a similar package. Both courses were available on a lease basis with the lessee having the responsibility of securing broadcast time.

The procedures followed by the "new breed" of producers, as Carlisle (1974, p. 73) described them, are similar. Subjects chosen for telecourse format are usually high-enrolling, general education topics. Maryland's College of the Air started with general education courses in biology, English, literature, and sociology. Of the ten telecourses produced by the Coast Community College District, an introductory psychology course has been the most popular, with over fifty thousand students enrolled since it was released in 1975.

Most producers of telecourses for national distribution prepare carefully designed print materials to go with the television programs. Some use existing texts while others have tried to produce specially written texts and anthologies. A study guide specially prepared for students taking the telecourse is a necessity in this independent study mode.

Increasing numbers of new telecourses being developed are cooperatively produced. One of the first models of a consortium for both production and use of telecourses was the Southern California Consortium for Community College Television formed in 1970. Consisting of thirty-five two-year colleges in the extended Los Angeles metropolitan area, this consortium has enrolled thousands of students in courses such as contemporary health issues and personal finance and money management. In other instances, schools have cooperated in production of one course. In developing the American government course, Dallas County Community College District contributed design and production leadership, with financial support and academic input from Chicago City Colleges, Coast Community College District, and Tarrant County Junior College District (Gross, 1978a).

One ambitious cooperative production involved Coast Community College District, University Extension of the University of California, San Diego, and McGraw-Hill, Inc., in the production of a child development course titled "The Growing Years" released in 1977. The programs, produced with a budget of nearly $1 million included film footage from CRM and other film distributors, had excellent visual appeal.

As a result of this activity, the critical shortage in the 1950s and 1960s of suitable courseware has been considerably reduced. The *Mass Media College Catalog* (1977) included descriptions of ninety-five courses in production or available under the headings of Humanities, Science, and Health; Social Science; Adult Development; and Occupational and Consumer Services. The need for good programming still exists, however, because most of these courses have a five-year life; and broadcast options through cable and satellite will increase.

Federal support for the creation of broadcast educational television has not been extensive, with one notable exception. In 1971, the first of a series of grants from the National Institute of Education toward the creation of the State University of Nebraska (SUN) was announced. This institution was to serve the adults interested in continuing their education but unable to do so on campus. Television, print (including newspaper segments), and radio were to be integrated and utilized in the carefully designed, researched, and produced courses. In 1974, SUN took the lead in creating the University of Mid-America (UMA), a consortium of midwestern universities, for the design and production of courses. The heavy commitment to research and the logistics of organizing UMA have made the original commitment of fifty courses by 1980 an impossible goal. Nine courses have been completed, however, and effort is currently being directed by UMA toward speeding up the production timeline.

Cooperative Telecourse Use. Paralleling the growth in the number of producers of telecourses since 1967 has been a growth in the use of telecourses by higher education institutions. User institutions in increasing numbers have joined in consortia to offer telecourses as a way to offset the cost of leasing the videotapes and securing air time. A consortium representing many institutions and a large potential audience also speaks with a more powerful voice when working with television stations. In turn, the station finds it easier to deal with requests for programming and scheduling from one agency rather than from dozens of schools in a broadcasting region.

Gross (1978b) describes some of the models of cooperative use of telecourses. Included in his description are the Bay Area Community College Television Consortium, the Southern California Consortium for Community College Television, Maryland College of the Air, and Connecticut's TV College.

Most of these systems offer between two and six telecourses each semester. In the process, these institutions have developed extremely sophisticated systems of support services for students; arrangements for air time that include PBS, commercial, and cable set-ups; and an understanding of the institutional arrangements necessary for telecourses, including role of the faculty member, cost of course offering, and provision for local publicity.

Institutions using telecourses have found that, rather than competing with on-campus courses, telecourses attract a "new" student—older, often full- or part-time employed, desiring convenient education. Thus, telecourses have become an established device for serving continuing education needs.

Radio

Especially during the 1960s and 1970s, radio has been largely overshadowed by television, but the two systems have also developed differently. One observer noted, "The qualified public radio stations constitute less than 19 percent of all noncommercial educational *radio* licenses in the country; for public TV, the figure approaches 100 percent" (Josephson, 1979, p. 7). Continuing educators wanting to use radio need to understand the differing systems and appreciate the unique instructional characteristics of radio.

National Public Radio (NPR) was incorporated in 1970. However, it was not until 1977 that organizational problems were solved and NPR assumed a stronger leadership role. By January 1979, 199 of 1,082 noncommercial educational radio stations qualified for NPR programming (Josephson, 1979, p. 10). Many are owned by postsecondary institutions. New public radio stations are being formed at the rate of one per week (Mayes, 1979).

Radio has much potential for use in continuing education. The president of NPR recently summarized the content strengths of radio, "radio is much closer to print media—to linear communications—in the area of news and public affairs and information. In entertainment programs, it may seem closer to television, but in fact it is here that television moves closer to films. And in the delivery of music, of course, radio is *sui generis*. In drama, radio liberates the mind as television confines it" (Mankiewicz, 1979, p. 32). Advantages of radio include lower cost of production, distribution, transmission, and reception compared to books or television. Treatment that on television would be called "talking heads" can be effective instruction for students on radio.

Many higher education institutions have recently been utilizing radio in continuing education. Complete learning systems using radio programs have been designed by the University of Mid-America, Dallas Community College District, and the Extended Learning Institute of Northern Virginia Community College. The PBS Adult Learning Task Force has also recognized the potential in combining video, radio, and print into effective learning systems, citing the recent series of radio programs used in conjunction with "The Shakespeare Plays" broadcast over television (Adult Learning Task Force, 1979). Brightly (1979) describes various examples of the use of Subsidiary Communications Authorization (SCA) bands on radio for serving the needs of target audiences, including the handicapped, on- and off-campus college students, and continuing education for physicians, nurses, dietitians, and others in related vocations.

As the number of stations grows and educators become more familiar with this resource, the development of radio for continuing education should expand.

Conclusion

Clearly, the years since the creation of the first university radio station in 1917 have revealed an incredible growth in the field of educational telecommunications. Until 1967, the efforts seemed fragmented and many excellent experiments failed. Today, however, Kelly and Anandam (1979, p. 73) note, "what is significant is the present emphasis on: providing a rigorous academic process for course development; exploiting the media for its optimum value; and designing communication support systems to support students on an individual basis." In addition, the organizational framework necessary to success has been set in place with the creation of public broadcasting systems for television and radio and the interinstitutional cooperation in the design, production, and use of telecommunications.

The next chapter in the story of telecommunications in education may be previewed in the recently published report of the Carnegie Commission on the Future of Public Broadcasting, *A Public Trust* (1979). In a chapter devoted to telecommunications and learning, the report states, "We recommend that public broadcasting renew its commitment to provide programs and services which help fulfill the promise of telecommunications to aid in the education of all Americans throughout their lives. The major responsibility for this effort rests with the stations" (p. 262). Other recommendations include calling for more research on uncovering how and what television and radio can teach best and for federal financial support of the development of high-quality instructional and educational programs that test and demonstrate the potential of telecommunications for learning. If these recommendations are adopted, a new phase of growth will begin.

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Article 5

"Telecommunications and Learning"

from
A Public Trust
The Carnegie Commission of the Future of Public Broadcasting

Television and radio have a singular impact upon us. Broadcasting's reach and sensory immediacy—the form and nature of its engagement—render it an intrinsically powerful instrument for learning. The statistics are familiar. Sixty-four percent of Americans rely on television as their principal source of news. The average high-school graduate has spent nearly 50 percent more time in front of the television set than in the classroom. On a winter Saturday morning, when most programming is targeted to children, the television set is on in a quarter of the nation's homes.

We witness history on television and radio—the celebration of our bicentennial, a President resigning, the war in Vietnam. Broadcasting's capacity to instruct and influence is used daily by politicians, religious groups, and advertisers. And yet, despite the power and ubiquity of the broadcast media, a troubling doubt persists of their realized effectiveness as educational tools. In spite of several notable successes in educational television, we have grown increasingly uneasy about the ability of our children to think and write clearly. Is there some connection between the vast amounts of time young people spend watching television or listening to radio and the conceptual fuzziness that their teachers seem to have identified during the last decade?

There are many reasons why America has not yet fully enlisted television and radio to assist in instructing our children, in broadening educational opportunity, and in stimulating the habit of lifelong learning. Commercial broadcasters have not viewed education as more than peripherally interesting, and the economics of commercial broadcasting reinforce such attitudes. Our educational system has become exceedingly complex as it has attempted to stay abreast of the explosion of knowledge. Bureaucracies have sprung up that tend to suppress innovation, or at least to assure that it is bungled. Broadcast instruction is easily ensnared in such bureaucratic arrangements. Moreover, American schools are constructed on a tradition of local control, while media by their nature tend toward centralized management. Funding for educational and instructional television from local government and private sources has been very uneven; some localities have committed large resources, others nothing. Some educators resist the idea that television or radio can be a valuable tool in learning. A few consider television as a competitive threat. Many teachers have not been trained to use these media as part of their professional equipment.

However valid or understandable may be these and other factors that have limited the role of broadcasting in education, two facts remain clear. Television and radio have great unused potential for learning, and new technologies are on the verge of greatly enhancing this potential.

From the Carnegie Commission, A Public Trust: The Landmark Report of the Future of Public Broadcasting, Bantam Books, 1979. Reprinted by permission of the publisher.

We believe it is time to take a fresh look at the role of television and radio in American education. The link between public broadcasting and education is strong. One-third of teachers nationwide use television regularly in their classrooms. The typical public television station devotes about 40 percent of its broadcast schedule to instructional programs and the two major children's series, *Sesame Street* and *The Electric Company*, and countless additional hours to programs of broader educational appeal. Much of the funding for public broadcasting comes from states and other sources—for broadly educational purposes. A majority of the public radio and television stations are licensed to universities, school boards, or states.

We believe it is time to launch new efforts to tap the power of broadcasting and the new telecommunications media for learning. Our investigation during the past year persuades us that public telecommunications will play a major role in education. To us, the question is not whether television and radio can teach, but how they are to be best used for learning. The issue is not whether public broadcasting has a responsibility in education, but how best to carry out that responsibility.

Our proposals for a strengthened and adequately funded public telecommunications system are based upon this significant role for education. We believe that stations should have the prime responsibility for the effort, through their own local programs and services, and especially by pooling funds for regional and national activities. The linkage between stations and educators at the local and regional levels is important in ensuring responsiveness to local educational needs and local control over curricula. At the same time, we believe it to be essential that the system build a strong national component that will finance serious research on the functional characteristics of television and radio as instructional tools and will also finance programs to test and demonstrate this potential.

Educational Television and Radio in Perspective

To suggest that America has not fully exploited broadcasting's potential for education is not to argue that this potential has been ignored. First with radio and later television, broadcasters, educators, and government officials have attempted to capitalize on the power of the media to enlighten. As early as the 1950s a variety of studies demonstrated that students could learn as well from television as from conventional classroom instruction. The shortage of teachers at that time, as well as fascination with the power of the new medium, spurred interest in television's ability to teach. Among the first concerns of proponents of educational television was the identification and development of methods for distributing instructional programming. Initially this involved the use of closed-circuit television. Later it was extended to broadcasting, or open-circuit television, through such pioneering efforts as the Chicago Television College. During the 1950s and 1960s universities, states, school boards, and other educational institutions obtained noncommercial broadcasting licenses. Thus began educational programming for in-school use and university outreach. Since television was expensive and the number of stations available was limited, other educators embraced special distribution systems such as Instructional Television Fixed Service (ITFS), a private microwave service. More recently, cable television and even communications satellites have been used to distribute educational programming.

During these early years, educational authorities invested large sums in educational hardware—television and radio stations, ITFS systems, and classroom equipment. Not until much later was the problem of software, the quality of the educational programs actually transmitted, seriously confronted.

The appearance and success of *Sesame Street* in 1968 had a profound impact on educational television. To date, *Sesame Street* is perhaps the most successful program designed for children's learning. It uses the production techniques of quality commercial television to create appealing programs that meet instructional goals. Before a single program was produced, a detailed curriculum was developed, including a well-defined set of educational objectives. Before any production segment was accepted as part of a finished program, it was tested on a group of children from the target audience. For the first time, educational researchers and professional producers worked closely together in creating a television series that was both instructive and entertaining. Today *Sesame Street* is entering its tenth season, has won numerous awards, and is watched so extensively that its per-viewer cost is only about 1¢ per episode, an extraordinary bargain.

Before *Sesame Street*, most educational television programs involved inexpensive production techniques, talking heads, and little imagination. These programs were designed to meet specific curricular objectives, but there was no research base to guide the production art. This new program for preschoolers became a standard of excellence and a point of departure for subsequent work. One important result was that the professional and financial resources required to produce programs like *Sesame Street* forced the production of comparable educational and instructional television programs to become more and more centralized. In 1964 about 56 percent of all instructional television programs were produced locally, whereas in 1976 the figure had dropped to 20 percent. Highly professional production organizations like Children's Television Workshop, the originator of *Sesame Street*, appeared and the federal government, which had supported the program, became more heavily involved in funding children's television programs.[1]

In the eyes of some educators not all of this material was ideal for in-school instruction. Moreover, they could not develop alternatives of comparable quality for local use because economies of scale, possible in spreading high production costs over many viewers, were unachievable at the local level. One response to this problem was the creation of the Agency for Instructional Television (AIT). Composed of state and Canadian provincial educational officials, AIT, through consortium ventures, has produced a number of high-quality instructional television series, including *Ripples, Inside/Out*, and *All About You*. One factor contributing to the success of the AIT series is that programs are created in direct response to curriculum needs identified by states and provinces that fund the production. This involvement of educators in program development appears to be crucial to the ultimate success of any instructional radio or television series, because broadcast instruction is not an end in itself but a component of an educational process that also encompasses both the classroom and the library.

At local, state, and regional levels, other successful instructional series have been created—some for local use only, but most intended for wider distribution.[2]

The Children's Television Workshop, the independent production center that originated *Sesame Street*, also created *The Electric Company*, a series designed to teach reading skills to primary-grade children. First broadcast in 1971, it continues to be the instructional program most used by the classroom teacher. Its wide use has been based, in part, on its acknowledged effectiveness. For example, after extensive use of the series by every teacher in a Lincoln Heights, Ohio, elementary school for one year, third graders scored five months higher in vocabulary than comparative scores in the third grade the year before. The mean score in comprehension was three months higher than the previous year's record, and second graders at the school made equally large gains. Such data are limited in applicability, and rather weak by the highest standards of educational research. But they constitute a precious form of empirical analysis suggesting how production decisions can be made on the basis of knowledge not preconception.

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[1] Under authority of the Special Projects Act and the Emergency School Aid Act, the U.S. Office of Education has spent some $70 million on children's television programming, most of it distributed on public television.

[2] The commercial networks and individual stations have periodically created noteworthy educational programs including such valuable series as *Call It Macaroni*, produced by Westinghouse Broadcasting, and ABC's *After School Specials*. Unfortunately, high-quality educational programs appear infrequently on commercial broadcasting and the system as a whole is unwilling or unable to devote significant resources to exploiting television's potential for learning.

Other efforts to produce quality instructional programming have been led by state networks, funded by some states as part of their commitment to education. In Mississippi, for example, there is a network of eight television stations reaching every corner of the state. Mississippi Educational Television broadcasts over 100 hours weekly. About 40 hours are instructional lessons, principally for primary-grade classrooms. There is also a wide range of self-help programs dealing with such diverse topics as professional training, cooking skills, Mississippi history, and motivating children to write. Similar networks exist in about fifteen other states, most notably Kentucky, Maryland, Nebraska, and South Carolina.

Television is also an important instructional tool in adult education. Using state and regional funds, in 1972 the Kentucky Authority for Educational Television designed and produced a series to aid adults preparing for the high-school equivalency examination. Now in use in 40 states, the series is intended chiefly for adults studying independently at home.

Television has also been used for formal instruction at the post secondary-school level. Since the fall of 1970, for example, over 225,000 people have enrolled in college courses on television as part of an outreach effort by 35 community colleges in southern California. Broadcast courses include consumer law, child development, psychology, and personal finance. Students have come from the diverse age groups and cultural backgrounds that characterize the interested general public in the Los Angeles metropolitan area served by the community colleges. A public television station, KOCE, licensed to community colleges in Orange County, has taken a leading role in developing programs for this effort. It has produced several programs, including a major series on child development. It has also led the effort to use general interest programs distributed nationwide by PBS as vehicles for formal learning. Programs such as *Ascent of Man* and *The Adams Chronicles* have now been used by scores of educational institutions as the centerpieces for credit courses in the history of science and American history. Approximately 50,000 students throughout the nation received course credits in conjunction with *The Adams Chronicles*. KOCE is currently working with the producers of a new series on man and space to see that this program can be used for formal education as well as general enlightenment.

Television also has a wide variety of instructional applications for other specialized groups within communities. A satellite networking experiment in Washington, Alaska, Montana, and Idaho (WAMI) has offered a solution to a lack of facilities for medical education in the Northwest. The WAMI demonstration was designed to test whether television transmitted via satellite could be used to train medical students by substituting for face-to-face contact in clinical counseling activities. The experiment seems to have been successful.

A wide spectrum of programs for adults is provided by the South Carolina Educational Television Authority. Along with extensive service to children in schools, the authority provides a full course of instruction leading to a master's degree in business, and programs for teachers, doctors, managers, and industrial workers to develop their skills and expertise.

Public radio's role in education has been less significant, but successful educational radio programs have been developed. Begun in 1972 at WGBH radio in Boston, *The Spider's Web*, a series of 30-minute programs of stories, interviews, poetry, and folk songs, is now heard on over a hundred noncommercial stations. The content of each program is broad enough to appeal to children and adults. There have been numerous efforts to develop special programs for the aged and the blind on public radio. Books, poetry, newspapers, and other reading materials are offered for listening.

The creation of successful instructional radio and television series has taught the industry several important lessons. It has demonstrated that television and radio can be used successfully to teach certain skills and concepts. Further, successes have occurred most often when educational researchers and professional producers work closely together from the inception of a program idea until it has been produced and evaluated for effectiveness. Experience has also taught that most programs designed for wide-scale use must be expertly produced and of high quality if they are to capture and hold the attention of the viewer.

But despite this catalog of successes, there is an evident shortage of quality instructional programming. Most telling is that the flagship programs, *Sesame Street* and *The Electric Company,* are now several years old. Since the introduction of *Sesame Street,* there have been few new innovative instructional programs to continue the analysis of programming concepts attractive to preschool and primary-school children. Of even greater concern is the fact that no programs capable of replacing these important pioneering efforts are being planned for public broadcasting. Adolescents and adults are still waiting for a *Sesame Street*-type breakthrough.

Significantly greater resources—both financial and creative—must be devoted to producing innovative and conceptually sophisticated instructional programming. The role of the broadcast media in continuing education and lifelong learning must be developed. And new technologies offering the potential greatly to aid or greatly to simplify the learning process must be exploited. For instance, it is not clear to the Commission that broadcast technology will continue to prevail over alternative means such as videocassette and videodisc equipment in delivering educational programming to tomorrow's schools and homes. The new technology appears to be far more flexible and perhaps less expensive, but appropriate delivery systems must be developed and tested.

A Commitment to Telecommunications for Learning

> We recommend that public broadcasting renew its commitment to provide programs and services which help fulfill the promise of telecommunications to aid in the education of all Americans throughout their lives. The major responsibility for this effort rests with the stations.

Throughout our investigation of public broadcasting—and as we contemplate the role of the public system during the next decade—we have been acutely conscious of the growing tension within the system between those who perceive its mission as narrowly "educational" and those who see it as a means of enhancing the public culture. Public radio and television, of course, began as an educational outreach, and even today the majority of noncommercial licenses are held by educational institutions and organizations. During the past ten years, in major part because of the recommendations of the first Carnegie Commission, public broadcasting has moved strongly toward a more public role. Nonetheless, educational and instructional programs and services are a significant part of public broadcasting. Televised lessons designed for formal classroom instruction are a significant element of most public television stations' schedules. The typical station devotes 21 percent of its air time to instructional programs for classroom use, another 16 percent to *Sesame Street* and *The Electric Company,* and many additional hours to such broadly educational programs as *Nova*, *National Geographic Specials*, and *Theater in America*, as well as cooking, gardening, and sports instruction. Public radio has traditionally devoted far less of its air time to instruction.

Whatever tension exists within public broadcasting over its instructional role has resulted from the system's inability to generate the resources necessary to meet both educational and cultural objectives. We believe that the substantially increased funding we have recommended for public broadcasting will go a long way toward resolving this dilemma. We believe that the ultimate decision about the mix of educational, instructional, and more broadly public services provided by public broadcasting is a decision which can only be made at the local level. This is true, of course, about all programming and service decisions in public broadcasting, but we believe it to be especially true of instruction and education. We harbor, in this country, an acute sensitivity about local control of education. Educational and instructional needs vary greatly and are often unique from community to community and state to state. The Commission believes that the stations and the communities they serve are the only qualified judges of local educational needs. They should, however, be able to choose from a variety of high-quality, nationally produced, thoroughly researched educational programming ideas to meet such needs.

Fundamentally, we believe that just as it is not possible to contemplate a public telecommunications system that is solely an instructional enterprise, so it is not possible to argue for a public system that does not take seriously a responsibility to develop telecommunications for learning. We regard each station as having the responsibility to carve out for itself an appropriate role in this area. Today it may be by providing in-school instructional programs during the daytime hours, although surely during the next decade it will be possible and perhaps necessary to employ more efficient and effective methods to assist in the education of our children. Or it may be through a more serious effort to apply telecommunications to meet the rapidly increasing appetite for lifelong learning. Or it may be in the provision of general enrichment programming which can be utilized in formal or informal education settings. The approach taken by stations may involve the use of FM subchannels for educational programs directed to smaller audiences, the use of cable television channels, or ITFS microwave service, and perhaps ultimately teletext services.

Thus we expect that stations will develop a wide range of educational and instructional services that fulfill the needs of their communities. Many of these needs will also face other stations, so they will often band together to finance program production, thus providing more effective, more carefully researched programs at a significantly lower cost per station.

We also expect that a significant number of stations will be able to produce local programs fulfilling unique instructional needs in their communities. Despite the experience of *Sesame Street* and other national programs, it is not certain that all educational programming must be costly. Experiments at Stanford University with tutored videotape instruction (TVI) for graduate students suggest that low-cost, small-format programs, when presented in an atmosphere that maximizes student interaction in the learning process, can be successful. Other experiments, in which teacher/student interaction was achieved via two-way cable television, have yielded similar results and deserve further exploration.

Another major step to increasing effectiveness while achieving economy is to maintain a library of quality instructional programs. As a station encounters a special need, it may find useful programs already produced and available through such a library service.

The increased flexibility afforded public television and radio by multichannel satellite delivery also makes possible greater sharing of resources to produce and distribute educational programming on a state or regional basis. Increased funds for stations will permit greater pooling of resources for such regional and national efforts.

Our emphasis on the importance of strong local determination in shaping a station's educational and instructional mission requires strong support. State and local governments must pursue this mission by providing not only hardware but also resources for programming. Telecommunications configurations such as those developed in South Carolina, Nebraska, and other states are vehicles through which important educational and instructional services—in-school instruction, continuing education, at-home learning—can be delivered.

A renewed and serious effort to realize the potential of television and radio for learning is thus primarily a matter of local initiative. Yet there are several areas which we think can benefit greatly by the direct involvement of the Program Services Endowment.

How Can Radio and Television Teach Best?

> We recommend that the Program Services Endowment initiate research aimed at identifying and developing how and what television and radio can teach best.

Government agencies, universities, and foundations have supported significant research on the use of radio and television for learning. Hundreds of studies on subjects ranging from the use of television to television's role in lifelong learning have been completed during the last decade. Although this research has been important in demonstrating some of the potential of radio and television for learning, it has also raised basic questions about the effectiveness of these media and their role in learning, in the classroom and in other settings by persons of all ages.

The apparent relation between the use of television and radio and the declining literacy in young people is of the utmost consequence. The average score on the Scholastic Aptitude Test, taken by high-school students seeking admission to college, has declined over the last 14 years. A similar decline in the ability of children between 13 and 17 to write acceptable English has been noted. On the other hand, a recent upturn in measured reading ability among elementary-school children has been seen by some as attributable to widespread viewing of *Sesame Street* and other high-quality children's programming. The presumptive relation between substantial television and radio usage and the ability to read and write needs serious study and careful analysis. It suggests a sociological phenomenon of major importance in which the conceptual skills of a population are altered or eroded over a period of years in the manner of the sea working on shore-based rocks. Does it happen? If it happens, is it due primarily to the passivity of the medium, or the nature of the programs viewed? There are many unanswered questions.

Research suggests that television does not adjust well to individual differences among viewers and tends to encourage passive forms of learning. The circumstances under which educational programming is received by an intended audience is a vital matter that needs far greater understanding. This area is particularly important in view of the development of new technologies such as two-way cable television, providing the feedback essential to all forms of learning. Videocassettes and videodiscs can further enhance flexibility and interaction in televised learning.

We have been impressed by some preliminary efforts to isolate the special strengths of television for learning. In the past, proponents of televised instruction have emphasized the richness of information television can communicate in history or science, where reading conveys little of the color or detail provided by visual images. Completed research has demonstrated that television can teach. The question we must address now is: *How and what can television teach best?*

Researchers have already identified a number of television's special attributes. Remarkably, it can teach processes by clever use of slow motion or fast motion techniques. This can be used to reveal the functioning of an internal-combustion engine, or the processes of growth in plants. Television's concreteness aids in establishing definitions and in illustrating specific forms of problem solving. It is effective as a teacher of values and attitudes. The nonpunitive, nonjudgmental character of television can enhance casual learning, and can help individuals with learning difficulties.

Television also has great capacity to take the viewer to places he could never visit in reality. The television program *The Incredible Machine* takes the camera inside the human body and examines the functions of various organs. The *Nova* series has excelled for a number of years in bringing intriguing scientific concepts to American television audiences by using close-ups, magnification, time sequencing, juxtaposition of sight and sound, and other sophisticated forms of editing.

Using the techniques of slow motion, freeze frame, and instant replay, television has excellent potential for teaching most abstract concepts.

One of the most fundamental research questions needing explanation is what differences exist between learning from the linear, symbolic patterns of print and the spoken word, and the simultaneous, iconic, observational patterns of the visual media. Greater understanding of these differences will enable educational researchers and producers to maximize the instructional effectiveness of television in new program development.

While research on these and other fundamental questions will necessarily be expensive and slow, effective programs can be made before all questions have been answered conclusively. Producers and researchers must work together closely to design and test components of programs in order to assure that they achieve their objectives.

Radio is also well suited to teaching, although there appears to be considerably less research on the subject. Like print, it can create an environment in which the imagination has great play. And, like television, radio can illustrate a variety of concepts and attitudes exceedingly well. At least one study has indicated that radio and television, when used properly, may be equally effective teaching devices. However, neither a radio nor a televised program can be fully effective in isolation. Each program must be carefully researched and produced as part of an integrated learning situation. The teacher must use the program to stimulate, provoke, and motivate the students, and to illuminate ancillary reading materials. Television and radio can never be more than invited guests in the classroom—the challenge is to make these visits more regular, more welcome, and a more intimate part of the entire classroom experience.

The Endowment's Role in Educational Programming

> We recommend that the Endowment and agencies of the federal government support the research necessary to identify and develop the capabilities of radio and television for learning.

We believe national leadership is essential and appropriate, both because the results will be beneficial to all of society and because state and local authorities are unlikely to be able to finance such an extensive undertaking.

> We encourage wide dissemination of the results of Endowment-funded study, and particularly recommend that research information and other findings be shared with commercial broadcasting.

In addition, we believe that the Endowment should join with other funders in supporting the synthesis of major research and evaluation findings, and their distribution to educators, laymen, researchers, programmers, broadcasters, and other interested groups. This activity is essential, and has often been neglected in the past.

> We recommend, further, that Endowment funds be used to stimulate studies of the effectiveness of programs once they are in use. Techniques should be developed that will aid in determining whether or not a program has achieved its objectives, and whether unintended effects occur.

The cost of an extensive evaluation of every program would be prohibitive. Accordingly, some major programs should be thoroughly evaluated while others would receive more cursory review.

The Program Services Endowment will be deeply involved in supporting these research efforts. Much of the work will be done in educational institutions or perhaps in specially constructed centers supported by the Endowment. We expect that other groups, such as NSF, HEW, foundations, and universities will also want to continue their studies of radio and television in learning. The object of all such endeavor should be a cross-fertilization process yielding a rich body of theory and empirical evidence.

New Programs and Services

> We recommend that the Program Services Endowment finance and stimulate the development of high-quality instructional and educational programs that test and demonstrate the potential of telecommunications for learning.

We have emphasized the need for strong local action to improve the quality and quantity of instructional and educational programs available to serve public broadcasting's diverse audience. We expect that with an increasing flow of funds directly to the stations, public broadcasters will at last be able to find sufficient resources to meet the educational needs of their communities. These increased funds will assist those stations and state networks which now produce educational programs. By the same token, schools, state departments of education, and licensees relying on organizations such as the Agency for Instructional Television to produce programs for in-school use will no doubt allocate increased funds for such activities.

We also expect that one of the major initiatives of stations will be in lifelong learning. Public broadcasting must help each of us come closer to reaching our educational potential by providing programs that bring us new skills and that help us maintain competence in our occupations.

Increased funding at the local level will also permit greater opportunity to aggregate funds regionally and nationally for producing educational programs aimed at both in-school and general use in television and radio. Public broadcasting's new satellite interconnection should make it easier for licensees to develop and share instructional programs for intrastate distribution.

At the same time, we believe it is essential for the Program Services Endowment to play a catalytic role in developing new educational programming. We anticipate that approximately $15 million will be allocated by the Endowment for research and programs that demonstrate the potential of television and radio for learning. Portions of these moneys might be used outright to fund directly several educational programs or series each year, or they could be used as risk capital to speed development of promising initiatives. While we anticipate that the general funding activities of the Program Services Endowment will support television and radio programs of a broadly educational nature, we believe that the Endowment should also reserve funds for programs designed with specific educational objectives and intended for use in schools, in colleges, or even in the home.

Just as the Program Services Endowment in its general program-funding activities is charged with seeking out innovation, testing new concepts, and filling gaps, so the Endowment can play the same role with respect to educational and instructional programming. We have already noted our strong concern that virtually no children's programs of the quality and scope of *Sesame Street* and *The Electric Company* appear to be on the horizon. If this situation is not addressed soon, one of public television's major attractions will be lost. At the same time, the development and application of new communications technologies—videodiscs and teletext services as well as the information services they make possible—will demand serious attention during the next five years.

Much of the direct funding presently provided by the federal government for educational and children's programming is tied to specific goals mandated by Congress. At the same time, other important learning objectives may not receive adequate attention because of funding limitations. With the flexibility to respond to new needs and stimulate the development of educational programming in new areas, the Program Services Endowment should be able to play an important catalytic role in suggesting new directions for federal policy.

If the potential for television and radio in learning is to be realized, these new programs and research findings must be widely available and widely used. Our recommendation for extending the reach of public broadcasting is vital to making the program available to homes and schools. Use in the home is dependent on a wide range of factors, including the availability of a receiver, the quality of reception, and the interest of the potential audience. To compete effectively for the available leisure time, programs for at-home use must be of the highest quality, appealing as well as educational.

The classroom use of instructional programs depends on availability, suitable equipment, and the teacher's decision on how best to use the limited hours in the school day. These programs are now used in a minority of American classrooms, primarily because most of them are broadcast at times that fail to fit an instructor's schedule. New technology should provide easy ways to overcome such rigidity. Audio and video tape recorders and closed-circuit telecasts are constantly increasing the teacher's ability to use radio and television in a manner and at a time of his or her own choosing.

If radio and television are to be fully developed for learning, the complex question of the extended availability of programs must be addressed. On the one hand, it is essential that good television and radio programs for learning be available on an extended basis to allow for their integration in school curriculums. Although the appropriate time to use a program may vary from one classroom to the next, current replay rights provide for use only within a few days following broadcast. On the other hand, if recorded programs are to be used extensively, the individuals involved in the production—both performers and production personnel—must be reimbursed fairly to reflect the likely impact the wide availability of recorded programs will have on the demand for live performances. Cooperation and leadership are required at the national level to find planned solutions to the problem. The Trust, with its responsibility to aid in the development of new and expanded instructional services, should begin this process by financing trial efforts to determine the effect of making programs available on an extended basis. Further, as we point out in Chapter VII, the Endowment should undertake a broad study of the entire question, including the possibility of establishing a national clearinghouse or other mechanism to deal with copyright clearance, licensing, and rights questions.

The potential of television and radio for learning is only beginning to be explored and exploited. Technology is advancing so rapidly that it is difficult to predict in what ways it will shape these media. Even now, however, it is clear that with careful planning, skillful execution, and thorough evaluation, telecommunications will play an increasingly fundamental role in the learning processes of Americans of all ages and backgrounds.

Article 6

"Chicago's TV College: Making the Walls Fall"

by

James J. Zigerell and Hymen M. Chausow

An Experiment That Worked

Stories of adults who complete all, or part, of their first two years of college by watching television in their homes are nothing new in Chicago. What started in September, 1956, as a bold new departure in extending educational opportunity—a three-year project underwritten in part by the Fund for the Advancement of Education of the Ford Foundation—has long since blended into the educational landscape of the Chicago metropolitan area. In the words of an earlier TV College report, the trial years from 1956 to 1961 "showed that a junior college program can be offered effectively on open-circuit TV"—and without any sacrifice of instructional quality. Accrediting agencies, professional associations, colleges and universities throughout the Midwest accept credit earned through TV College without question.

It also quickly became apparent that the Chicago area, served by educational VHF and UHF sister channels, contains a virtually inexhaustible audience of mature, highly motivated people capable of completing college courses by studying on their own. Once the Ford Foundation grant had been exhausted in 1960, the General Superintendent of Chicago's Public Schools, who was the *ex officio* chief administrator of Chicago's junior college system, recommended that the instructional television program be continued and supported in its entirety by taxpayers' funds. Since 1966, when the City Colleges of Chicago, of which TV College is an extension, came under the control of its own Board of Trustees—which appointed a Chancellor as the College's chief executive officer—the instructional television service has received only the warmest support from the central administration.

TV College regularly polls viewers' opinions of its instructional service. An overwhelming majority report that they find their TV courses challenging and, even more important, that they enjoy studying by TV. The results of one questionnaire distributed to TV College students who had moved on to on-campus study in four-year colleges deserve special mention. Most of the three hundred respondents stated that they learned just as much by TV as they did in the conventional classroom. They reported also that the grades they made in their conventional courses in four-year colleges were about the same as their TV grades. Further—and this is not surprising, since

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TV College courses are produced for open-circuit broadcast—they all judged their television courses to be better organized and more effectively presented than the conventionally taught courses they had taken in the colleges to which they transferred.

In short, there is no longer any need to defend television as an instructional medium in the public community college system of Chicago. Although only modestly financed—and seldom enjoying elaborate production or extensive research support—TV College has remained in the vanguard of instructional television in this country. Fred Hechinger, former Education Editor of the *New York Times,* singled out TV College as the most consistently successful of all U.S. colleges employing TV instruction. Murphy and Gross in their *Learning by Television,* the already cited report on U.S. instructional television published under Ford Foundation auspices, labeled the TV College achievement a "highly successful experiment." This same report found little else to praise.

All this is not offered boastfully. Rather, it is meant to suggest that conditions have been right for the achievement of a primary, if limited, goal: namely, enabling residents of the Chicago area within the broadcast range of the local public television station to complete junior college courses by watching television in their homes. A writer in an English educational journal put it well: "It (TV College) doesn't go in for prestige, but for quiet, solid usefulness."

TV College teachers, drawn for the most part from the seven colleges of the City Colleges of Chicago, have proved to be enthusiastic, adaptable, and resourceful. Home-viewing students are highly motivated and self-reliant. A small but dedicated staff of producers and graphic artists, working on a modest budget, add functional, unobtrusive production support. Above all, the Chancellor of the City Colleges of Chicago and his staff provide the kind of whole-hearted administrative support absolutely essential to the success of an innovative program.

With the uncertain trial years well behind us, the time is ripe for another summing up—a critical summing up, if only to avoid the temptation of settling for readily achievable goals, when we should be seeking out new ones.

In short, TV College is looking for ways to serve the Chicago community still more. In 1969, a *London Times* reporter, reviewing uses of television by U.S. higher education institutions, arrived at the following conclusions:

> For America television has so far provided some important fringe education—by feeding a small number of unlikely people into the college campuses, by providing a satisfying hobby for a number of middle-aged housewives, successful vocational courses (for doctors in Washington, policemen in Boston, nurses in Minneapolis) and a career for a few. . . . But by failure of commitment and imagination from the top America's educational needs and television's potential have barely been brought together.

The current rage for external degree programs and "open universities" signals that the time has come for "commitment and imagination."

The report which follows is part roll call of achievement, part admission of failure, part assessment of immediate needs, and, for the most part, a brave look—or squint, at least—into the future.

The Overall View

The first three years proved that in a metropolitan area the size of Chicago, with a potential viewing audience of some six to six-and-a-half million people, there is a virtually inexhaustible audience of mature, able, and highly motivated students eager to enroll as credit students in college-level television courses.

The record speaks for itself:

Over 150,000 individuals enrolled in televised courses, with most taking no more than one course;

Of this total, some 80,000 students enrolled officially in the college for credit;

Another 70,000 students enrolled unofficially as non-credit students;

An average of 10,000 viewers watching every TV College program;

TV College on the air an average of 26 hours weekly;

The student retention (number of students who complete a semester's work) averaging between 70 and 80 percent.

Here are a few other highlights:

About 80 different courses offered for credit, plus a half-dozen courses not for credit; most of the credit courses repeated in subsequent semesters;

Several non-credit series produced with funding from government and private sources, including the recent Man and His Art, *nominated by television critics for a special award for production excellence; A television course in Data Processing used by United States Air Force and Army servicemen in Germany;*

About 400 students awarded the Associate in Arts degree for study entirely by TV;

About 2,200 students graduated from the City Colleges of Chicago with an Associate in Arts degree taking, on the average, one semester of their work by TV;

A sizable proportion of TV College students enrolled in conventional courses on the Colleges' campuses;

Approximately 40 percent of TV students with plans to teach;

TV College production now entirely in color.

Section II

Design and Production of Telecourses

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Section II

Design and Production of Telecourses

Introduction

Everyone involved with telecourses needs to understand the process by which such courses are created. The early days of instructional television production involved relatively few people—usually only an instructor in front of the camera and the production crew. In comparison, one can look at the process of producing "Sesame Street," the leading instructional television series for children. Producing "Sesame Street" today involves a large team of people, including educational psychologists, researchers, producers, academic consultants, and scriptwriters as well as on-camera "instructors." Also, the "talking-head" format of early televised instruction has been replaced by programs which make use of a wide range of treatment styles. Consequently, the number of people involved in these programs has grown to include print and television experts, academics and, often, instructional designers. The number of individuals now involved in the production of television courses for adults generally falls somewhere in between the two extremes represented by early instructional television and the "Sesame Street" series. The selections in this section discuss different aspects of this fascinating and complex process.

In Article 7, Richardson reminds us how much we don't know about why telecourses work or fail to work as instructional systems. She calls for more in-depth study of existing research and theory to design courses which better serve the needs of adult learners and coordinate the strengths of television, print, and other media.

Since the British Open University was one of the first to use television to serve "distant" students, it is useful to look at the university's "course creation" process as described by the chancellor of the system, Walter Perry. Perry describes British versions of problems experienced in American telecourse production: meeting timelines, staying within budget, and tension between the television staff and other course team members.

The purposes and steps of instructional design in the telecourse production process are described in Article 9 by Purdy. O'Bryan (Article 10) takes a look at the process from the perspective of one course team member the scriptwriter. He makes an important observation about the need for the television programs to be motivational and interesting because the audience is not a "captive" one, as it is in the classroom. The selection reprinted here is taken from O'Bryan's book, *Writing for Instructional Television,* a practical and insightful book which should be read by everyone involved in producing instructional television.

One encouraging development in the literature on telecourses is the appearance of research reports which analyze the instructional effectiveness of various video treatment styles. Does it make a difference in student learning whether the television programs are more didactic in tone and appearance or whether they demonstrate some television glamour? Aversa looks at the answer to that question by comparing two programs treating the same topic and the student learning and evaluation of those programs.

Looking at the experience of the British Open University (BOU), Brown describes some of the possible roles for the television component in "distance learning" courses. He reminds us that although the programs can be well produced, they may fail in their instructional purpose if they are not reinforced and integrated with other instructional components such as the print materials and instructor.

Current modes of instructional television have received much criticism as well as praise. In Article 13, Smith asserts that instructional television, in England and the United States, has reached neither the number of students promised and expected nor people not being served by existing educational methods. For Smith, television may be an expensive and irrelevant ingredient in a course where the bulk of the content is carried by other components in what basically amounts to a correspondence course. This opinion may be a useful warning note to a course team conceiving of television as serving largely motivational and pacing functions. Unless the television programs address some of the central cognitive concepts of a course, the programs may be seen as frills, and therefore, optional. However, the selections by Aversa and O'Bryan also remind us that the difference between the performance of a motivated student and an unmotivated student is crucial to success in the distance learning situation. Motivating the learner may still be a very desirable and important function of video in telecourses.

Article 7

"Issues in Television—Centered Instruction"

by
Penelope Richardson

In this country we have had decades of high hopes for the use of technology to solve educational problems, but so far, the printed word or picture is the most widely used technique for mediating instruction in higher education. Ten years ago, when there was great optimism about applications of electronically mediated instruction, the Carnegie Commission on Higher Education (1972, p. 1) forecast that "by the year 2000 it now appears that a significant proportion of instruction in higher education on campus may be carried on through informational technology." But by 1975, a further study sponsored by the Carnegie Commission (Rockart and Morton, 1975) suggested instead:

> . . . the real impact of the new technology will for the most part be adding to, rather than replacing, current learning mechanisms. Some current mechanisms will be displaced, but the new technology will allow two major improvements. First, it will provide increased enrichment . . . Second, it will provide increased access by university faculty to students formerly outside the geographic limits of the regular educational system (p. 276).

It is this latter possibility that is now generating such enthusiasm on the part of certain higher educators and educational technologists. Demographics indicate that colleges and universities of the 1980's and 1990's will have to deal with an increasingly diverse range of students—diverse in age, educational purpose, background and preparation, socioeconomic status, and ethnicity. If these institutions are to meet the nation's educational needs in the future, so the argument goes, they cannot limit their concern to students who are between the ages of 18 and 25, white, middle-class, and academically skilled (Chickering, 1981). Major pressures for change come from nontraditional groups of students new to higher education: those over 25 (who already outnumber students under 25), women with families, minority students, and students from non-academic backgrounds. Clearly, to the enthusiasts for technology, the problem can best be solved by telecommunications technologies, which can deliver instruction to students at times and places convenient to them.

A number of events nationally have heightened the sense that, at last, it's all about to happen. Many telecourse consortia are now in the business of producing, marketing, and offering telecourses (Munshi, 1980; Richardson, 1980b; Yarrington, 1979). A study done in 1979 by the National Center for Education Statistics and the Corporation for Public Broadcasting indicates

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that some 71% of the nation's higher education institutions made some use of television for instructional and other purposes during 1978–79 (Dirr, et al, 1981). The Public Broadcasting Service began its new Adult Learning Programming Service in September, 1981, offering several telecourses each semester through public television stations to students unable to attend college on campus. New technologies are proliferating, and the 1978 Public Telecommunications Finances Act redefined telecommunication to include many modes of delivery: transmission via broadcast television and radio and other-than-broadcast distribution including coaxial cable, optical fiber, broadcast translators, cassettes, discs, microwave, or laser transmission through the atmosphere. The Carnegie Corporation has funded the American Association of Higher Education to establish a Center for Learning and Telecommunications (Center for Learning and Telecommunications, 1981). And to clinch it and convince everyone that the Promised Land is finally here, former ambassador Walter H. Annenberg has given $150 million dollars to the Corporation for Public Broadcasting, to create new telecourses and to demonstrate the use of communications systems in solving higher education problems (Corporation for Public Broadcasting, 1981).

Clearly, this proliferation of technologies and accompanying surge of entrepreneurial activities raises questions of great importance to higher and adult educators. What criteria should be used for selecting and supporting programs and projects? What is known about adult motivation and recruitment practices effective with different subgroups? What is known about instructional strategies effective in bringing about learning achievement for adults who participate in mediated instructional systems? What is known about logistics, costs, and audiences for various technological delivery systems? What is known of the technical assistance and training needs of the new adopters?

Decision-makers who turn to the research on mediated instruction or on adult learning will find little to guide their decisions. Wilkinson's critique of sixty years of research on media instruction (1980) summarizes a number of problems with the research: imprecise definitions of terms, poor research questions, faulty experimental designs, research which trades off internal validity for external validity. Cross's attempt to make sense of research on adults as learners (1981) indicates a similar paucity of useful findings, probably because age per se is not a critical variable in predicting learning (Knox, 1980). Much of the research she summarizes was not done on learning outcomes at all, but on reasons adults give for participation or on claims they make about their "self-directed learning projects."

What is needed are some reviews of research which would critique and synthesize findings from instructional psychology, instructional technology, adult higher education, mass communications, social psychology, and related fields. These reviews should be addressed to decision-makers and should assist in developing or selecting educationally sound telecourses for adults. The particular reviews suggested here center on reaching and teaching the adult learner, as opposed to dealing with organizational, institutional, or policymaking areas.

1. A critical analysis is needed of existing telecourse packages and their theories of content, teaching-learning processes, and evaluation.
2. A review of research should be done on the motivation of various subgroups of adults and the recruitment and retention strategies which are effective for them.
3. A review of research should be done on instructional strategies effective for adult learners.
4. A review of research should be done on the logistics and costs of alternative delivery technologies and support systems and the audiences they are likely to reach.
5. A review of research should be done on the technical assistance and training needs of the new adopters.

I. A Critical Analysis Is Needed of Existing Telecourse Packages

As the certainty grows that the modern American college will be populated by a very different kind of student, the adult learner, much thought is being given to implications for the mission of higher education. Chickering (1981) has suggested that the idea of human development can supply a unifying purpose for the modern American college.

> By understanding how students from 18 to 80 meet life cycle challenges and grow in terms of intellectual competence, ego development, moral and ethical development, humanitarian concern, interpersonal competence, capacity for intimacy, and professional development, educators can examine the potential contributions of various disciplines, areas of professional preparation, and educational practice.
>
> (Chickering, 1981, p. 7)

In the development of telecourse materials for adults, it is especially important that a clear definition of the criteria for excellence be developed. New technologies are developing rapidly, new monies are available for course development, and new pressures are being felt by technologists and educators to produce and market their wares. The various institutions involved in telecourse development are beset by a variety of political pressures and could easily be tempted by quick profit, pulled a dozen different ways and lose sight of the key question: the purpose of education.

Conceptually, the kinds of questions which must be asked about existing or developing telecourses include the following: What is their view of the learner? Of the teacher? Of the interaction between the two? Of the structure of knowledge, skills, and attitudes it is hoped the learner will develop? Of the relationship between the goals of the learning situation and broader societal needs? Course producers need to make explicit and to subject to public scrutiny the theories of content, teaching-learning process, and short- and long-term student outcomes (Butman and Fletcher, 1973) upon which instructional choices are based. A constant dialogue between theory and practice is needed as the work of course development and acquisition proceeds.

Keppel and Chickering (1981) question whether educational technologies and varied forms of mediated instruction can contribute significantly to life cycle developmental tasks and to major dimensions of adult development. They concede that such vehicles may do a reasonably good job in imparting knowledge, communicating concepts, and helping students learn the language, methods of inquiry, and modes of thought of various disciplines or vocations. They recognize that such media may, when properly developed, achieve a wide range of training outcomes, especially if they can respond effectively to individual differences. But they view skeptically the suggestion that such vehicles could aid students in more general areas of human development.

A critical analysis of existing telecourse packages could identify those examples which seem aimed at accomplishing the broader adult development goals mentioned above, and could clarify and make explicit the different curricular conceptions represented in the various packages (Vallance, Note 1). The packages could also be evaluated according to the degree to which they assist learners to identify their own strengths and weaknesses as independent learners, and provide developmental assistance, as suggested by Richardson (Note 2). The outcome would be the development of evaluative criteria to guide the creation of new course packages, criteria which consider the new goals for higher education and the importance of adult development as well as learning achievement outcomes.

II. A Review of Research Should Be Done on the Motivations of Various Subgroups of Adults and the Recruitment and Retention Strategies Which Are Effective for Them.

One of the hopes of funders of distance learning opportunities is that access will be provided to higher education for groups of students previously unable to take advantage of educational opportunities. Data on who currently participates in the distance learning opportunities available is scattered. Bryan and Forman (1977) indicate that the population of University of Mid-America distance learners is 75% women, average age 37, median income $11,000, half of whom had not participated in formal education during the previous five years. Their goals were personal satisfaction and career development, and two-thirds wanted degrees. McIntosh and Woodley (Note 3) indicate that Britain's Open University appeals mainly to the upwardly mobile students, of working class backgrounds, who have professional and technical jobs. The labor class is unrepresented (true in America too), although the original purpose of the British Open University was to provide a "second chance" for the educationally deprived.

A review of research is needed to identify strategies effective in recruiting and retaining different subgroups of adult learners, so that decision-makers have more than demographic data to go on.

Such a review should have a number of characteristics. First, it should provide operational definitions of the strategy in question. Much that has been written about recruitment is vague and exhortatory; recruitment strategies such as "media advertisements," "alumni networks," or "college fair" are mentioned. But from much that is written, it is not clear who the strategy is intended to reach, why people believe it would be successful, and specifically what the psychological functions of the recruitment strategy are. The same is true for retention strategies. Explicit operational definitions of recruitment and retentions strategies need to be gathered.

Second, such a review should include the literature on effective recruitment and retention strategies for campus-based learners as well as distance learners, and for other kinds of activities besides learning activities. The basic question in recruitment and retention is this: what causes people to decide to participate in something and to stick with it once they're involved? In an Education Testing Service summary of several studies on college student attrition and retention, the reasons students give for leaving include academic matters; financial difficulties, motivational problems; personal considerations; full-time jobs; the expressed need for new, practical, non-academic experiences; and the lack of initial plans to obtain a degree (Ramist, 1981). Some of the reasons don't fit the adult distance learner; others do. Specifically, two factors crucial to retention were faculty-student interaction and effective counseling. Much has been written about campus-based recruitment and retention, and this literature should be culled for useful advice for planners of distance learning.

Third, such a review should provide a functional analysis of the recruitment/retention strategies presented. For example, the psychological literature tells us that the outcome of persistence is linked to the strategy of reinforcement. Whether on or off-campus students are the target audience, activities which reinforce for them their efforts are needed if they are to persist as students.

Fourth, such a review should identify the critical characteristics of adults which predict participation and persistence in a distance learning program. Cross (1981) has developed a Chain of Response Model which summarizes key factors others have suggested are significant. She suggests that when a learner needs to learn something, and realizes it, two initial factors will determine action: self-evaluation and attitudes about education. If both these are positive, influencing factors might be life transitions, importance of related new goals, and expectation that participation in education would assist in meeting those new goals. If these are all positive, the learner would then seek information about education, and would assess the opportunities and barriers in various educational situations. If these factors are favorable, the learner is ready to make the decision to participate. If all goes well, the learner's self-evaluation and attitudes toward education become more positive, and the likelihood of further participation increases. She points out that institutions focus their effort on providing information and removing institutional barriers, when the real blocks may be earlier in student self-concept or attitude. Also, the individual differences of adults should be taken into account in such a review. What attracts and retains a successful and self-confident learner might be very different from what would attract and keep an anxious and inexperienced learner.

Fifth, such a review should be theoretically oriented, showing the relationship of recruitment/retention strategies to psychological effects on the learner. Miller's force field analysis (1967), Rubenson's expectancy-valency paradigm (Note 4), Boshier's congruence model (1971), and Tough's anticipated benefits model (Note 5), are all attempts to develop explanatory principles for adult participation. A theory of the achievement motivation and cognitive development of adults of various aptitudes needs to be developed and related to the effective environmental interventions (recruitment/retention strategies) which might be used.

Sixth, such a review should be eclectic and pragmatic, making appropriate use of strategies grounded in marketing research, social psychology, and communications theory. Mass communications researchers and practioners (such as advertisers) have a good deal of knowledge applicable to recruiting adult learners to telecourses, and that knowledge should be tapped.

Lavish expenditures to develop new learning opportunities are wasted if adults don't take advantage of them, and "equal opportunity" arguments are empty if only the affluent and educated are customers for distance learning. A review of research on recruitment and retention strategies for different subgroups is needed.

III. A Review of Research Is Needed on Instructional Strategies Which Predict Learning Achievement for Different Sub-Groups of Adult Learners.

One of the problems with the newer telecommunications technologies is that their glamour often prevents people from thinking clearly about them. As Clark points out (Note 6), one result is that developers too rarely distinguish between a technology as a mode of transmission of messages, instructional or otherwise, and technology as a set of specific techniques employed in the instructional act. "Technologies of transmission" refers to those technologies which transmit messages. They are simply delivery devices which transmit instructional programs, in the same way that a postman or a carrier pigeon delivers a letter. "Technologies of instruction," on the other hand, are the set of research-derived principles for the design of instructional strategies which make up the teaching-learning process: strategies such as cuing the learner so that he/she attends to the appropriate instructional task, designing the instructional message so that it activates existing information-processing skills, reinforcing and providing feedback, or building appropriate amounts of novelty or humor into instruction. Wilbur Schramm (1977) has recently noted that learning and achievement are more affected by the techniques we employ in the instructional act than by the medium which we choose to deliver instruction. The most important issue, seldom addressed by instructional technologists, is which of the many instructional methods which are available should be transmitted by an instructional medium. This decision rests less on the technology of transmission than on our current knowledge of instructional research and development.

Such a review should have a number of characteristics. First, it should provide operational definitions of the strategy in question. A problem with much of the research which compares one instructional treatment to another is that the treatments are not clearly specified; they are combinations of techniques which go under vague, generic labels such as "programmed instruction" or "personalized system of instruction." Thus the findings are difficult to interpret. It has been commented that educational psychologists are able to measure individuals with micrometers but that they tend to measure treatments with divining rods, and that situation still prevails today. A number of individuals are working on developing better specification of instructional treatments (Leinhardt, 1980; Clark, 1980[a]) and their work can be consulted for further guidelines in this area.

Second, such a review should include the literature on effective instructional strategies for all age groups, not merely adults. Many research-derived principles about human learning and instruction have been discovered which offer guidance for the design of instructional strategies for all ages: strategies such as cuing the learner so that he/she attends to the appropriate instructional task, designing the instructional message so that it activates existing information-processing skills, reinforcing appropriate behaviors, or building appropriate amounts of novelty or humor into instruction (Menges, 1981). These findings need to be applied to instructional design for adults rather than putting adult instruction in a ghetto uninfluenced by discoveries about learning.

Third, such a review should provide a functional analysis of the instructional strategies presented. Salomon (1979) describes three models for thinking about the function of all methods: remedial (in which the function is to insure that the learner acquires the skills s/he needs in order to solve an instructional problem), compensatory (in which the function is to circumvent a learner's weaknesses by supplying him or her with the temporary aids needed in order to solve an instructional problem) and preferential (in which the function is to build upon the learner's special capabilities). Each of these models is supported by a body of instructional research which suggests helpful design principles to practitioners.

Fourth, such a review should identify the critical aptitudes in adults which predict learning from a given instructional strategy. Adults with high general ability, well-developed cognitive strategies, prior learning in the subject area, constructive (as opposed to defensive) motivation, and a strong sense of self-efficacy are likely to do well in an instructional situation which puts much of the information-processing load on them, in other words, one which is relatively unstructured; adults who lack these characteristics are likely to need their instruction to be more directive, structured, broken into small steps with immediate feedback at each step, and so on. (Further writing on the relationship of adult aptitudes to appropriate instructional techniques can be found in Cronbach and Snow, 1977; Clark, Note 6; Allen, 1975; Goldstein, 1973; Salomon, 1979; Richardson, Note 2).

Fifth, such a review should be theoretically oriented, showing the relationship of instructional strategies to psychological effects on the learner. Salomon (1979) points out that we need to move research on media in education from an atheoretical, unsystematic, "isolationist" exploration to a more systematic, theoretically guided inquiry, one which would relate the learner's information-processing capacity to the medium's particular way of structuring and conveying contents through its symbol systems.

> If media differ along specific dimensions (such as their technologies of transmission, contents, or symbol systems), then there are a number of possible ways in which media can interact with human behavior and learning. Not only do the sources of variance differ, but they affect different domains or outcome. The technology of a medium affects the modes of interaction with users (compare computer-based instruction with a television show of the same content), and the transmitted content affects the knowledge acquired. The societal context in which a message is received affects emotional states, and the didactic mode of the message affects the ease of processing its content. It follows, then, that different aspects of media interact with different aspects of behavior, thus undermining a conception of media as invariant entities.
>
> (Salomon, 1979, p. 8)

Salomon's *Interaction of Media, Cognition and Learning* argues that study is needed of the nature of a medium's most essential attributes and the psychological functions that they can be made to accomplish under different conditions and for different learners.

Sixth, such a review should be eclectic and pragmatic, making appropriate use of strategies grounded in behavioral, cognitive, and humanist learning and instructional theories, as opposed to being based in a narrow philosophical viewpoint. It is likely that for certain learners, given certain goals and learning tasks, one set of instructional strategies might be quite appropriate, and for a different group, entirely different strategies would make more sense. Goldstein's *Structured Learning Therapy* (1973) proposes a four-stage instructional sequence of modeling, role-playing, social reinforcement, and transfer of training to help mental patients learn community living skills. Such strategies are clearly grounded in behaviorist and social learning theories, and are appropriate for a client group with a restricted language code (Bernstein, 1964), an authoritarian upbringing, and a low sense of self-efficacy. For the motivated group of middle managers attending workshops given by adult educator Malcolm Knowles (1977), the humanistically-oriented techniques he proposes of collaborative goal-setting, planning, and evaluation make sense, since he's dealing with a group of individuals who already have the cognitive strategies to engage in self-directed learning. For instructional situations in which the goal is meaningful learning or concept acquisition, strategies such as cuing, defining, providing examples and non-examples, sequencing, providing practice for mastery and for transfer, and reinforcing, are all appropriate (Merrill and Tennyson, 1977). A good review of instructional strategies should be practical rather than ideological.

Seventh, such a review should be especially clear about the counterintuitive findings contained in recent instructional research. For example, a favorite saw of adult educators is that adults learn more if you allow them to choose the instructional method; however Clark (Note 7) has reviewed a large number of studies which indicate that learners tend to select the method from which they will learn the least. Another "obvious" truth for a while was that adults who are slower learners will profit more from novel, media-oriented approaches. In fact, the research-based finding is that slower learners need *more* structure and sequence, while the capable students can handle more novel and less-structured approaches (Cronbach and Snow, 1977). Another incorrect assumption has been that if you want to predict who will learn most, it's important to know such things as sex, socioeconomic status, religion, and goals. In fact, general intelligence is the best predictor of amount of learning, and when that is controlled for, the sociodemographic factors don't account for any variance. The sociodemographic factors are useful in helping to predict who will participate, but not who will learn. Gage and Berliner (1979) provide an excellent beginning list of counter-intuitive findings with implications for appropriate use of instructional strategies.

Such a review of research on instructional strategies would be a contribution to the field of adult instruction in general, not just to the field of television-centered instruction. Comparative media studies indicate that the technology of transmission is not a significant variable in learning outcomes (Schramm, 1977; Briggs, et al, 1976). Any medium can be used to teach, and the selection of strategy should rest on our current knowledge of instructional research and development, which would be summarized in a good review of research on instructional strategies.

IV. A Comprehensive Review of Research Is Needed on the Technologies of Transmission and the Logistics of Delivery. What Would Reach Whom, in the Most Cost-Effective Manner?

Such a review should have a number of characteristics. First, it should catalog the various technologies, give a functional description of each, characterize its critical delivery capacities and limitations, and provide an estimate of costs. Dordick et al (1979) have developed a manual entitled, "ITV: A User's Guide to the Technology," under the auspices of The Office of Engineering Research of The Corporation for Public Broadcasting, which comes close. It presents an overview of available instructional television technologies, over-the-air transmission such as broadcasting, ITFS, and satellite; wire or cable transmission, such as cable television and common carrier services; and copy technologies such as videotape, videocassette and videodisk. It also explores some mixed distribution modes, including ITFS and cable television broadcasting and copy and cable and broadcasting. Additionally, it presents several multi-mode options that meet such special objectives as maximizing program availability for a minimum cost. Its main limitation is that it is written mainly to assist school administrators and teachers make effective use of instructional television, rather than including examples and issues for adult and continuing education.

Second, such a review should provide alternate models for use: large-scale and complex, medium-scale, and simple and transportable. These models would relate the critical features of information delivery to an array of user needs and capacities.

Third, it would be helpful if such a review could be illustrated with some detailed case studies. For example, the TAGER Television Network links seventeen college and university campuses in Texas to a large number of corporate subscribers in the area, who receive graduate courses in business and engineering and handle around 2,000 registrations per semester (The Association for Higher Education of North Texas, 1981) In Seattle, a consortium of eleven colleges and universities is providing credit and non-credit courses, professional continuing education and developmental education to 100,000 homes and public libraries by cable (Dirr, Note 8). In Ohio, a consortium is using the two-way capabilities of the Warner Amex Qube system to provide courses (Dirr, Note 8). In San Diego, the State College is using cable radio to provide credit courses which fulfill the general education requirements leading toward a bachelor's degree (Dirr, Note 8). Many community colleges are collaborating with public broadcast stations and other community agencies to serve both formal and nonformal learning needs of the community (Richardson, 1980; Yarrington, 1979). These case studies should include empirical data on cost, time, personnel, and management systems involved in the various models, and should clearly identify the economies of scale which result from the different models. The case studies should relate the technologies to such features of their setting as community size, institutional factors, and alternative uses. They should also be explicit about unintended consequences.

V. A Review of Research Needs to Be Done on the Technical Assistance and Training Needs of the New Adopters.

The Corporation for Public Broadcasting's Higher Education Utilization Study (Dirr, et al, 1981) found that major factors which seem to affect positively the use of television for instruction include: faculty members' support for the use of television for instruction, availability of courses which meet the academic needs and standards of the colleges, and television outlet operators who are sympathetic to the colleges' goals for television use. Each of these areas imply a need for technical assistance and training.

Faculty members' support for the use of television for instruction can best be gotten by involving them in all aspects of decision-making. Evaluation of the federal programs developed during the U.S. "Great Society" years of educational reform and of federal attempts to change the school indicate that the local practitioner is a powerful and legitimate force to be reckoned with (Dollar, 1978). Research on adoption and diffusion of innovation (Havelock and Huberman, 1978) argues for the importance of the local educator or planner. The complexities of the educational setting as a social system, combined with the primacy of personal contact, argue for the necessity for local faculty members to participate in all aspects of program development or utilization. Effective implementation requires personal interaction and contacts among practitioners and between practitioners if old roles are to be changed and new ones are to be learned.

Empirically, the overall quality of any instructional development process will ultimately be judged by the quality of the instructional products and the teaching-learning system developed. Instructional products must be developed which meet the criteria for quality in these three areas: content, instructional design, and aesthetic appeal. Additionally, they must meet the needs and expectations of external critics who act as gatekeepers. Richardson (1980a) found that different criteria are employed by people who hold different roles in an organization. Faculty members look for "materials which have substantial educational content and meet the standards of the college." Station managers are more interested in "materials which are of high production quality and meet the standards of the station." Instructional designers are most concerned that "materials are structured to enhance motivation, participation, persistence, and learning on the part of the at-home learner." Marketers are looking for "materials which are designed for flexible and compatible use in a variety of settings." The casual home viewer is unlikely to watch unless "materials meet learner's needs, stimulate interest, have broad appeal, and attract large, general audiences." Clearly, achieving a "high quality" instructional product is no easy task.

Similarly, certain quality criteria for the teaching-learning system must be met. Richardson (1980a) found the following to be the major expectations for a quality teaching-learning system: the system must have a special plan for telecourse delivery, including processes for academic administration, target population assessment, inservice training for counselors and course managers, curriculum development and design, and research and evaluation. Each course must be designed as a coordinated instructional system, with all components working together to serve the same instructional objectives. Local support services must foster involvement (personal contact by phone or mail, seminar opportunities, counseling) and feedback (self-study quizzes, prescriptive comments on homework). Administrative arrangements must be designed for the adult learner: information and recruitment materials must be easily available; simple procedures must be available for registration, taking exams, obtaining course credit. Television programs must be offered at times convenient to the adult learner. These criteria were developed through interviews with telecourse students, faculty members, station managers, community college administrators, and marketing representatives, and need further validation (Richardson, 1980a).

All of the above topics have implications for the technical assistance and training needs of the new adopters of telecourses, whether they are designing, selecting, or establishing support services for them. The new technologies can't just be added on; in some cases they require a rethinking of the total educational system in order to be viable. Understanding the training needs of each member of the system is crucial.

In sum, the new adult client group may or may not be effectively served by telecommunications delivery systems, but it will clearly take more than high hopes to accomplish it. Just after the Civil War, new railroad tracks were built all over the country, and alongside many of them, new colleges were built too. The assumption seemed to be that once the technology was in place to deliver people to the site of learning, everything else would fall into place. Unfortunately, many of these new institutions were unclear about their mission, unable to effectively recruit and retain students, had an inadequate grasp of the teaching-learning process and the related effective instructional strategies, and weren't able to train and develop their staff quickly enough to serve their students. So many of them withered away shortly. It wasn't enough then to deliver students to the instruction, and it isn't enough now to deliver the instruction to the student. We need to take stock before we charge ahead, and some reviews of research for decision-makers can assist us in the stock-taking.

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Article 8

"Course Creation"

by
Walter Perry

In Chapter 4 I described the evolution of the structure of the Open University degree. It was to be gained by obtaining credits in a number of 'courses'. The basic elements of each 'course' had been described by the Planning Committee. There were to be specially written correspondence texts sent to the student through the post and these were to be integrated with television and radio broadcasts transmitted on open circuit. The specially constructed teaching materials would refer to set text books and to additional background reading lists. Students would be required to undertake written assignments which would be marked by a 'correspondence tutor' and this activity was seen as a method of teaching as much as a method of assessment of performance. In addition students would be required to attend short residential summer schools and would be offered, optionally, the opportunity of meeting a counsellor (and later a tutor) and other students at one of a network of local study centres. Each course would end with a final examination to be held in local examination centres.

We were therefore faced with all the problems involved in setting up the machinery to operate courses of this kind. It is possible, with hindsight, to analyse these problems and to see that they fall into four separate categories. First we had to create the course, to determine its objectives, its content, the method of its presentation. Second, we had to produce the course as printed books, recorded videotapes, and other materials suitable for presentation to the student. Third, we had to transmit the course to the students, and this involved not only the use of the postal services and open-circuit broadcasting, but also the organisation of all the regional back-up services—of study centres, part-time counsellors and tutors and summer schools—needed to support the teaching-learning process. Finally, we had to accredit the course by assessing the students' work, both throughout his period of study and in a terminal examination so that we could award credit for the course at an approved and recognised standard.

In the conventional university course creation occurs in the mind of an individual teacher, who sorts out his own thoughts and ideas in preparing his lectures. There is often no stage of course production, except when printed lecture notes are reproduced. Course transmission consists in delivering the lecture in the classroom (and distributing any printed lecture notes). Only in the process of course accreditation are there elements that closely resemble those of the Open University system. I shall try to describe these four stages of devising a course as they developed in the context of our new system; in this chapter I shall consider the creative phase.

To produce the drafts of the various 'course materials' that would enable an adult, working in isolation, to reach a predetermined standard of performance in a given area of study, called for the combined skills of a number of groups of people. First we had to have not just one university

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teacher, with his thoughts and ideas about the objectives, contents and methods of presentation of the course, but several, because our courses were to be multi-disciplinary as well as multimedia in nature. This, in turn, meant that each teacher would have different and inevitably conflicting thoughts and ideas which would somehow have to be reconciled with each other to lead to an agreed final version. Second, since the university teachers that we could recruit would mostly be unfamiliar with the special problems both of educating adults and of teaching at a distance, we would need the advice of other experts, in particular educational technologists and television and radio producers, in order to determine the method of presentation of the course. The need for educational technologists had been foreseen by the Planning Committee which had said that the aim must be 'to provide the necessary expertise in the educational technologies associated with specialised course design, with correspondence tuition, with radio and television broadcasting, with the special problems of adult education and with the problems of programmed learning and with the assessment of student performance'. This was an aim that was relatively easy to state but turned out to be excessively difficult to achieve.

We therefore needed three separate groups of specialist staff, and we had to set about attracting them. The academic staff were recruited as already described, the radio and television production staff by the BBC. The educational technologists had still to be found. All three groups had then to learn about each others' problems and to work together on a common task. We had to operate by teamwork and this was the whole basis of the concept of the 'course team'. I believe this was one of the most important and far-reaching concepts of the Open University which, it seems probable, will become more and more widely used all over the world.

The reports of the Advisory Committee and the Planning Committee give very little indication of their thinking about the real nature of the academic staffing of the Open University. The Advisory Committee envisaged that the University would require a central professional staff of between forty and fifty. This total included not only the academic staff but also the administrative and operational staff that would be required. In respect of the academic staff the Advisory Committee mentioned only 'a group of highly qualified heads of faculties, who would be responsible for the planning of courses in their own subjects and for the selection of lecturers and tutors'. As far as I can make out from the papers submitted to the Advisory Committee and from the discussion with members of that committee at a later date, this very small nucleus of full-time academics would select lecturers and tutors from amongst the staff of other universities and colleges. These lecturers and tutors, on secondment from their normal duties would make programmers within the courses devised by the small group of full-time staff. The Planning Committee envisaged academic departments 'staffed by full-time university teachers who will be employed under conditions of service comparable to those which apply in other universities'. The academic departments would be grouped into a number of lines of study corresponding to faculties, each line being under the administrative control of a Director of Studies who would be the counterpart of a Dean of a Faculty.

The Planning Committee went no further, leaving the staffing of each individual department for determination by the Senate of the new university once it was set up. Nevertheless, when I joined the Planning Committee after my appointment in June 1968, I became aware that their concept was similar to that of the Advisory Committee, namely of a small nucleus of full-time academic staff aided by a large number of people from other universities employed on secondment or for short-term periods as consultants. When I was faced with issuing the first advertisements for academic staff, I had to make some estimate in my own mind of how many would be employed in any one discipline. I had to argue very strongly with the Planning Committee to get them to accept my minimum figure of four members of the academic staff per discipline. This was a figure which I virtually drew out of the air. I knew that any smaller number could not provide for that cross-fertilisation of ideas through which academics maintain their drive and interest in their own subject. Working in isolation is not a happy situation for most people. At that time too I had the naive idea that one full-time member of the academic staff could probably write a full credit course in one full year of work. Since any one discipline would offer only two courses of its own (one third level and one fourth level course) and would participate in four multidisciplinary courses of the faculty concerned (one foundation course and three second level courses) it seemed to me that four full-time staff could cope with this total load and still allow one of the four to be on study leave in any one year. I was not alone in this misconception, as all my early colleagues in these first meetings of the Senate concurred in that judgement. How wrong we were! And how fortunate it was that we were so wrong! For at that time I was also planning the first buildings. Had I foreseen with any accuracy the real needs in terms of staff numbers, our demands for building would probably have frightened off even our most faithful political supporters.

The Planning Committee had made a very significant stride forward in determining that the academic staff would be employed on terms and conditions of service comparable to those in other universities. This, I always felt, would be absolutely crucial in attracting an adequate staff. I decided that I would make no attempt to select staff on the basis of experience in the techniques of broadcasting, of communication at a distance, or of adult education but that, on the contrary, I would use precisely the same criteria as I would have used in the University of Edinburgh. I would be looking for academics of a quality recognised by any other university in the country. I was determined to ensure that the Open University would as early as possible gain academic acceptance as a reputable institution. We therefore recruited these first staff by issuing advertisements in normal form in the normal journals that attract academic applications. I was more than relieved when we received more than 1,200 applications, emanating overwhelmingly from reputable candidates with an academic record comparable to, indeed often better than, that of applicants for jobs in other universities. This was really the first time that I began to believe in my heart of hearts that we would succeed.

We soon became aware that the academic staff would need help of a kind we had not foreseen. The phase of creating a course was to be followed by the phase of production, and it transpired that the interface between the two presented a whole series of day-to-day problems. Thus, if a course were broken down into 36 individual 'units' of work for a student, the first units would go into the 'production phase' at the same time as later units would still be in the 'creation phase'. Academic staff, labouring over the creative effort, could not easily attend to the more mundane problems associated with converting their earlier creations into finished 'course materials'. Yet problems about the selection of graphics and photographs for the illustration of texts, about the editing and lay-out of drafts for the printers, the packaging of finished materials for students, the scheduling of the whole complex process, arose daily.

For this reason we began to recruit a number of junior graduate staff to carry out such functions. We have had great difficulty with this group over the years. In the first place it was very difficult to define in any precise way just what their duties would be. We were developing our systems as we went along and new tasks arose at frequent intervals. No one liked to be a 'dogsbody' but it was the inevitable fate of our first recruits in these jobs. The second problem was that there was no obvious career structure for them, because this was a job for which there was no counterpart in other universities. At the time that we were recruiting, the job market in the university world in general was very depressed. Consequently we attracted people of a calibre and quality much higher than we had expected, whose career aspirations were therefore much more ambitious than we had allowed for. These people developed very considerable skills in handling the particular system of the Open University and became virtually irreplaceable. There were no comparable jobs available to them in other institutions, and promotion within the University can only be to a lectureship when a vacancy arises. This is only one example of a problem that we have encountered all too frequently. A wholly innovative institution is bound to require categories of staff that have no counterparts elsewhere. When such a category calls for senior positions—career grades—the situation is tenable, but where this is not so, the difficulty can become well-nigh insuperable. Either one is bound to create senior positions without really needing them and with a consequent escalation in costs, or one creates frustration and disaffection amongst the staff concerned, there being nowhere for them to go. A number of these problems remain unsolved.

We were also faced with the necessity of providing an adequate library service to back up the work of the academic staff. We needed more than a conventional library: we were really setting up a 'department of media resources' and a collection of audiovisual materials was therefore as important as a collection of printed materials. As far as the students were concerned, scattered as they were throughout the whole of the country, it would not be feasible to offer a library service. They would have to rely on the public libraries and on inter-library loan services to acquire the reading material that they would need. Support for libraries in other universities is geared to and determined by the student population as well as by the number of academic staff. Consequently we could expect only a very small library grant, since we had no student users to justify a large one. We had to cut our coat according to our cloth, and we determined that we would build an absolutely first class collection in the field of educational technology but would not, indeed could not, attempt to build comparable collections in all the academic disciplines that would be represented within the university. Our staff in these disciplines would likewise have to rely on inter-library loans and on the use of other university libraries. This policy has been modified over the years and the collection is now considerably better than we had at one time feared it might be. But it is still far from adequate as compared with the libraries of other universities. One of the moves that I have long hoped to make in a more favourable economic climate is to launch an appeal for funds to build the library up to an adequate size.

When I began work in 1969, educational technologists with the range of skills which we required were extremely rare birds. Furthermore, although the need for such people in the early days would be paramount, the academic staff of the university seemed likely, or so I thought, rapidly to acquire such skills, both by association with educational technologists and by the continual application of their techniques, so that the need for this kind of specialist help would probably decline. Yet the immediate need was acute, not only for the development of the courses themselves but also for the academic planning of the various systems that we had to develop. It was clear that we could not hope to recruit to our own staff enough skilled educational technologists sufficiently quickly to satisfy these urgent needs. This crucial gap was filled by contracting with a group of consultants (Instructional Systems Associates) to provide the help we needed. During the course of their contract the consultants became so intimately involved with, and fascinated by, the development of the Open University that the company went into voluntary suspension and the three senior partners all accepted full-time posts in the university. Meanwhile we proceeded to recruit educational technologists to our full-time staff as fast as we could. How were we to fit this group into the new university? We decided to create a Department of Applied Educational Sciences. We were well aware that the phase 'educational technology' tended throughout the world to be interpreted as meaning knowledge of the 'hardware' associated with education—teaching machines, computer-aided instruction, audiovisual aids and so on. We were concerned primarily with the development of 'software', of the methodology to teaching, and the title 'Applied Educational Sciences' seemed to describe more precisely what the new department was trying to achieve. But we were soon to make a further change.

The Planning Committee had recommended most strongly an on-going programme of research into the operation of the University. How effective would our educational system turn out to be? What would happen to those adults who succeeded in obtaining degrees? A whole host of problems of this kind called for investigation and we would need a staff of experts to undertake the research. We had made a small start by appointing two research officers to study the effectiveness of the so-called 'Gateway' courses that were being offered in 1970 by the National Extension College in association with the BBC, as preparatory courses for the Open University. This was only a small, almost a token start on what the Planning Committee had hoped would be a major activity of the new university. There was continuous pressure to increase the scale of our institutional research from members of the Planning Committee and later of the Council of the Open University. Yet our resources were very limited and the needs of course production and transmission inevitably took priority. The need for institutional research was clearly going to become acute as the first students began work in 1971, and the volume of such research would certainly grow as the size of the student population increased in subsequent years. This prospect suggested to me that there was a potential correlation between the growing need for institutional research and the declining need for advice on course construction, as the academic staff themselves became more and more experienced and skilled in such tasks. I therefore proposed that the Department of Applied Educational Sciences should be combined with the group of Research Officers into a single Institute. I considered that the staff of the Department of Applied Educational Sciences would be just the sort of people who could most happily and successfully undertake institutional research as the need for this advisory service declined. My suggestion was accepted, although with some misgivings, by the staff concerned and the Institute of Educational Technology was born.

The misgivings were justified in part. As it turned out, the need for advisory services increased over the years rather than declined. This was partly because the academic staff expanded each year so that we have always had many who had neither associated with educational technologists nor had had experience in applying their techniques, and partly because, even amongst experienced academics, a substantial number turned out to be either unwilling or unable to assimilate the principles and practices of the educational technologists. Although this particular burden on the staff of the Institute has grown heavier, the staff of the Institute have become more and more deeply involved in institutional research, supported increasingly both from our own funds and from research grants, to enable the work to be significantly extended. Consequently they have had less time to devote to the advisory services, the need for which has not declined.

Regarding the development of BBC production facilities, it is apparent from the tone of the statement issued jointly by the BBC and the Planning Committee that there were considerable doubts on both sides as to just how this partnership would work out in practice. The tradition within the BBC was plain; the producer was the boss. What he said went and, within the limits of the budget provided, he had full control of the content and shape of each broadcast. This was clearly unacceptable to the University, where the broadcast had to fit into the pattern of a multimedia course. The University thus feared that the BBC might exert too great an influence on the shape of programmes. On the other hand the BBC feared that the University would insist on what would turn out to be bad television. These fears were a reflection of the unhappy outcome of many attempts at educational broadcasting both in this country and even more overseas, which had led to confrontation and conflict between two creative artists, namely the academic and the producer.

Most of the suspicion stemmed from ignorance. To remove it required that each of the partners got to know much more about the other. To this end we held a number of meetings, both formal and informal, so that staff would get to know each other as well as finding out about organisation and technique. Most of our staff had no experience of television and required a considerable indoctrination into the principles and practice thereof. Most of the BBC production staff were newly recruited and themselves had to be trained in their own expertise. Such production staff were recruited from amongst the graduate population of the country at the same time as the University was advertising for its academic staff. In a number of cases the same individuals applied for jobs both in the BBC and in the Open University. As a result the production staff of the BBC were of very high academic quality, comparable in almost every respect to their academic counterparts in the University, and this made for increased mutual trust. New production staff were trained by a small nucleus of experienced producers from the BBC's general educational service who were dedicated to the idea of the Open University, and they were splendid promoters of a happy relationship. However, it was necessary for the University's academic staff to learn the ways of production studios and to be introduced to the problems and difficulties of teaching through these media. In consequence, at that time there was perhaps more to-ing and fro-ing between the University and Alexandra Palace than at any time since. I remember being taken by Don Grattan behind the scenes at Television Centre to see how a studio worked. I fear I was an inept pupil but at least I, like others, gained some appreciation of the enormous technical difficulties.

It was very hard for those of us without experience of television production to accept that it would take a whole day—sometimes two whole days—in a studio to produce a programme lasting only twenty-five minutes. It was sometimes hard for the BBC to realise that the academic who was working flat out to prepare a correspondence text could not spare the time to work out the precise details of a broadcast related to that text until the text itself had taken on a reasonably final form. It was equally difficult for some of our staff to accept that the nice things they would like to show on television would be vastly too expensive and time-consuming to create on videotape. Finally, it was sometimes difficult for the BBC production staff to realise that an attractive visual presentation of a particular technique would actually carry very little pedagogic weight when shown to students. The two partners had to get to know each other's foibles and prejudices much more intimately than they did at the outset before the partnership could be said to work happily. These early contacts culminated in the production of pilot programmes, two for each faculty, that were made only to be discarded, but the exercise greatly helped both sides to understand the techniques, systems and attitudes of the other before course production actually began.

From the very beginning the Planning Committee was anxious to ensure that responsibility for the nature, the content and the teaching of each course offered by the University should be vested in the University as a whole. It should not be left to the whim of the individual department or the individual member of staff. Thus in our recruitment policy we made it clear that each professor, while he would be head of his discipline, would not be head of a discrete department with its own budget. I had long believed that departmental control of teaching is a root cause of much that is wrong with educational programmes in conventional universities. It permits individual academics to produce courses designed primarily for the scholars of the future and militates against the provision of courses more suited (relevant!) to those whose careers will lie outside the pursuit of the discipline concerned.

At the same time I firmly believe that departments are necessary units in a university. The department is the spiritual home of the members of a discipline; the head of department is the focal point for research in that discipline and must be the leader of the research team, controlling recruitment of team members and finding and allocating funds and other resources for the research. But the department, efficient though it is as a base for university research, is not a good base for university teaching. We might well have had departments as administrative units in order to fulfil the functions of research and administration, but we were aware that with only four members of each discipline these units would be so small as not to be viable. Thus we made the smallest administrative unit the faculty, in the hope that both the administration, and indeed the research, would be inter-disciplinary in nature. However, staffing of the disciplines is still the responsibility of the appropriate head of the subject and this frequently determines the nature of the on-going research.

Since responsibility for teaching preferences was not to be vested in academic departments, a new form of control had to be found. This led to the concept of the Course Team. Essentially each Team was to consist of three groups of staff: academics, educational technologists and BBC production staff. Once set up the Team would have delegated to it authority for the content, nature and method of presentation of the course, together with full responsibility for its standard and for creating it at the proper time and the proper price. We hoped that a Course Team of this kind would provide an excellent vehicle for the creation of the sort of course we had in mind. It would bring together academics from a number of disciplines, a vital factor in the creation of a multidisciplinary course, and would provide the expert knowledge that was needed to make the course suitable for adults working in isolation through correspondence texts and radio and television broadcasts. It offered a real hope of creating a course that would be a balanced, logical and integrated whole.

Each Course Team is, essentially, a sub-committee of the Senate. This is very proper, for the primary duties of the team are to ensure that the course is of proper quality and that credit in the course reflects a proper standard of achievement. The Vice-Chancellor, as Chairman of Senate, is ultimately responsible for ensuring that the course teams carry out these primary duties. In practice this responsibility is delegated to the Dean of the Faculty concerned who, in turn, delegates it to the Chairman of the Course Team.

On the other hand the Vice-Chancellor, as chief academic and administrative officer of the university, has, to quote the Charter, 'a general responsibility to the Council and the Senate for maintaining and promoting the efficiency and good order of the university'. In exercising this responsibility he must ensure not only that course materials are of the necessary quality and standard (in which he is clearly acting for the Senate) but also that they are produced in time for their transmission to students, and that their cost falls within the budgetary limits laid down. In these latter capacities he must act with the authority not only of the Senate but also of the Council, as the employer of both the academic staff and the administrative and operational staff who are involved in the later stages of course production and course transmission. Thus the course team must not only create a course of quality and standard, they must create it at a time and a price consistent with the efficient functioning of the University as a whole. Consequently the authority

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of the Council, as well as that of the Senate, is delegated by the Vice-Chancellor to the Dean of the appropriate Faculty and, through him, to the Course Team Chairman in respect of these latter duties.

Obviously the two sets of responsibilities may clash. Such a clash, when it occurs, does so in the persons of the Course Team Chairman, the Dean of Faculty and the Vice-Chancellor, each of whom has a dual responsibility and each of whom must, on occasion, exercise a balance of judgement. Quite clearly it would be fatuous for them to insist on the distribution of material to meet appropriate deadlines if its quality and standard were below that which would be acceptable to the Senate. Equally clearly, it would be fatuous for them to allow a Course Team to prolong the recasting and polishing of the creative work that goes into making a course unit to such an extent that deadlines were missed and the material, however good, failed to reach the students in time.

In 1969 there was very little difficulty in appointing the course teams for the first four foundation courses. All academic staff in post in September 1969 in any individual faculty were *ex officio* members of the foundation course team of that particular faculty and the Dean of the Faculty was course team chairman. In addition, we arranged for cross-faculty representation, thus providing a means whereby one faculty could influence another, so that the four foundation courses would not be too divergent in style or structure.

From our nucleus of trained educational technologists we seconded at least one to each of the four course teams. In addition, the BBC production staff, chosen by the BBC itself to be responsible for the broadcast element of each of the foundation courses, sat as full members of the appropriate course team.

In 1969 the foundation course teams numbered 9 to 16, but they were to get bigger. Additional academic staff, recruited a year later to help in the preparation of second level courses, were often made full members of foundation course teams so that the final size was two or three times the original size. The structure of the foundation course teams did not, however, become the pattern for the future. The very fact that each faculty was preparing only one course and that the chairman of that course team and the Dean of the faculty were one and the same person meant that there was no divergence between the roles of the faculty and of the course team. These two bodies were virtually identical, and this led to a deferral within the University of any clear definition of their respective responsibilities or those of the Dean and the course team chairman. When the need for such definition became urgent it was therefore based upon experience in practice rather than on any preconceived notion of how precisely the administrative structure should work.

I have never actually been a member of a course team. Thus, although I have from time to time attended meetings of individual teams, others are very much better able to describe their detailed mode of operation than I am. John Ferguson in his recent book *The Open University from Within*[1] has given his own impressions of the working of the foundation course team in the Faculty of Arts. In the earlier book, *The Open University Opens*[2] edited by Jeremy Tunstall, a number of other members of the academic staff give graphic accounts of their experience in their course teams.

Looking at the operation of the foundation course teams from the outside I soon became aware that considerable differences in practice were developing in the various faculties. In a subject like literature, the raw materials of teaching are the written works of the authors of the past, and the teacher is essentially writing a structured commentary on them. Such a commentary will clearly be a personal view, and a team will never produce a commentary that is as provocative and interesting as that written by a single individual. It thus became the practice in the Faculties of Arts and Social Sciences for the major part of the course materials to be written by individual members of staff, to appear under their own names, and also to be identified as their own work. Other members of the course team might comment on and criticise the initial drafts of the main author, but it remained his responsibility as to how far he accepted their suggestions, provided always that his final draft was acceptable to his colleagues. In the Faculties of Science and Mathematics, the whole concept was different. Although the first draft of any one unit would be prepared by one person, it was never regarded as his own individual work, and the ultimate draft was the result of the work of all the members of the group concerned. Consequently, drafts did not appear under the name of an author, but as the work of the course team itself. Furthermore, they tended to be themselves the raw material of the course and the number of texts to which they referred was very small. Indeed in the foundation course in mathematics there was no set textbook at all and the correspondence texts themselves formed the entire written substance of the course.

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[1] Ferguson, J. *The Open University from Within*. University of London Press, 1975

[2] Tunstall, J. (ed.) *The Open University Opens*, Routledge and Kegan Paul, 1974

These differences were to have unexpected and profound effects on the development of the university. It is much quicker to proceed by the method whereby one individual is primarily responsible for a course unit, and where his colleagues have the job only of criticising and commenting on it, than it is for a whole committee to arrive at an agreed draft of each unit in a course. The productivity rates in the faculties of Arts and Social Sciences therefore soon became much higher than those in the faculties of Science and Mathematics. This inevitably affected the levels of staffing required.

Each course team found that academic quality always took priority in the initial stages of making a course. Consequently deadlines were frequently missed and this imposed a heavy burden on the production and distribution divisions of the University, which were faced with catching up on the time lost by the academic side. On the whole this burden was willingly accepted by the non-academic staff who became aware of the extreme difficulties under which the academics worked. In all cases, however, the course teams had to work to a schedule which was usually determined by the Dean of Faculty concerned. No attempt was made to ensure that all faculties followed precisely the same pattern, and practices varied widely.

The first task of the course team was to determine the syllabus of the course. The general experience was that this was the most difficult stage of all. It invariably took a very long time, and sometimes involved bitter and acrimonious argument. The process by which each member of the team had to achieve an understanding of the ways in which the minds of his colleagues worked, before the group could get going, provided a fascinating illustration of group dynamics. Thereafter, I am told, things became much easier. The syllabus was divided into manageable portions, sometimes initially into blocks of work, and ultimately into individual units, each of which represented one week's work for a student. Sometimes a team would delegate responsibility for a block to a sub-group, and ultimately the writing of the first draft of each unit became the responsibility of one member of the team.

We had agreed to allocate an equal amount of television and radio transmission time to each of the foundation courses. We were aware that the pedagogic need for broadcasting might be different in each case and that, ultimately, the rations of broadcasting time for courses should vary according to that need. In the first year of operation of the University, these courses would also be its main shop window, allowing the academic and political worlds to see what precisely we were trying to do. Since we had no experience of trying to estimate the pedagogic need for broadcasting it therefore seemed sensible to allow each foundation course team to work out its own way of making the best use of the same amount of time on television and radio.

Each unit of a course consisted essentially of a correspondence book, a television programme and a radio programme. The texts for all three had to be prepared in parallel so that the integrated relationship between the media would be preserved. They also had to go through a number of drafts so that the criticism and comments of members of the course team could be taken into account. The course team chairman remained in overall control and had to read all these drafts himself to make sure they were up to the standard that he was setting for himself, as guided by his own course team. In some instances drafts might be prepared by external consultants, asked to undertake a broadcast or the preparation of a bit of correspondence text. Such consultants would be supernumerary members of the course team in respect of the units or blocks with which they were concerned. The creation of an integrated multimedia course in which the broadcasts reflected the correspondence text and could be understood in association with that text, raised all sorts of problems with scheduling. The number of days available in the BBC studios for the production of the courses did not allow much margin of safety. For example, the television studio schedule might require that a course team produce the videotape for unit 17 on a particular day. It followed that the correspondence text for unit 17 had to be prepared in parallel. If it were delayed and the studio date were consequently missed, not only did we incur the expense of running the studio with no output, but it became increasingly difficult to provide another free day in the studio.

We were anxious that the course units, once written, should be subjected to some form of pilot testing. Various methods were used for this, but essentially it meant that the text must be ready many months in advance of teaching actual students, so that it could be tried out on 'guinea-pig' students and their comments taken into account in preparing the final version. In addition to this, we had agreed to submit the final drafts of all texts to external assessors, who were academics on the staff of other universities. All these precautions to ensure the standard of our teaching materials were regarded as essential, but imposed severe time constraints on the staff of the University. The finished correspondence texts had to be passed over to the production side of the University for printing 18 weeks before the mailing date to the students. A lecture, to be delivered in a classroom, can frequently be prepared 24 hours beforehand. The comparable cycle in the Open University is a matter of many months at the very least. Yet it is extremely hard to finalise a course unit in July when you know that it will not actually reach your students until January, six months later. The temptation to bring the material up-to-date during that long gap is very strong, and resisting it is difficult. There is, of course, an opportunity to make corrections in galley proof or in page proof, but this is expensive and must be resisted if the cost of printing and production is not to become overwhelmingly high, and even page proofs must be returned to the printer many weeks before the mailing date.

One result of all this was an increasing demand from academics for extra material that could be prepared much nearer the actual time of teaching. These came to be known as 'supplementary materials'. They could be printed by reprographic methods quite quickly, and despatched to the student along with the course materials. This device is used for many other purposes such as the provision of broadcast notes, instructions for using home-experiment kits, and assessment questions (which are changed annually). It is, however, an extra expense and adds considerably to the volume of material sent to the student.

As the foundation course teams got going we began to find out just how much effort was needed to create these courses, and just how wrong our estimates of 'productivity' had been. We were already falling behind our timetables and getting worried about whether the courses would be ready for our first students in 1971. We needed extra manpower and thus everyone available was soon involved with these critical first four courses. The planning of the second level courses needed in 1972 had to be put off. This decision was forced upon us for we simply could not afford to fall down on the job in our very first year of public appearance. Yet the consequent delays in planning second level courses imposed even greater constraints on our subsequent production schedules; and this was of particular concern to our producers at the BBC.

In the first year of production the BBC produced some 130 programmes for the four Foundation Courses but by the second year this number had more than doubled. The recording schedules became very tight with little room to manoeuvre and as Course Teams came under increasing pressure, broadcast and print production tended to get out of phase on some courses. Furthermore, in order to give Course Teams and the BBC sufficient time to view completed programmes, write the associated broadcast supplementary notes and put the programmes in the BBC's transmission system a deadline of 16 weeks was fixed between recording and transmission. The result of this was that some programmes were recorded too early and last minute changes and reappraisals of the print component sometimes conspired against the most effective integration of the broadcast component.

These were very serious matters which might adversely affect the quality of our later courses and we spent many many hours trying to devise ways, some facile some ingenious, of overcoming the difficulties. One vital need was to increase the number of full-time academic staff; external consultants, although valuable and necessary in many situations, worked more slowly and produced material which, despite its high intrinsic quality, still required amendment by the full-time staff to make it fit in with the rest of the course and to make it suitable for teaching adults at a distance. Thus any spare resources that could be found were devoted to this increase in our full-time academic staff.

By 1975, things had changed very considerably. In the first place, the number of academics who could be spared to sit on individual course teams got smaller and in the second place, as the courses became more specialized the number of academics who had anything to offer to the construction of a given course became smaller. As a result, the size of course teams itself became smaller and this has both advantages and disadvantages. With a large course team it inevitably takes longer to agree on the syllabus, and indeed on the individual units themselves; with a small course team one tends to reach a situation where the work becomes more like that of an individual member of the academic staff than that of a team. This means that the standard and quality of the course becomes more dependent on the standard and quality of individual members of staff themselves, which is inevitably bound to vary.

I had hoped that as time went on the academic staff of the University would become more expert in the techniques of educational technology so that the members of the Institute of Educational Technology would be less essential to the course teams. This has not turned out to be quite so true as I had anticipated. In the first place the forty-odd members of staff who started in 1969 are now only one-seventh of the total staff of 280 academics, many of whom have joined the University relatively recently and have had little opportunity of acquiring the necessary skills. In the second place, although it is true that many members of the academic staff have become extremely expert in the principles and practice of educational technology, others find these difficult to grasp and to apply; they require the continuous stimulation of educational technologists to keep them in the forefront of their minds. Yet the staff of the Institute of Educational Technology has not increased in parallel with the academic staff, and the burden on the educational technologists sitting as members of course teams has got steadily heavier, so that sometimes the contribution made to a particular course team by the educational technologist concerned is very small indeed. This is a very different situation from that applying to the BBC, whose production staff has expanded in parallel with our own academic staff and whose producers have always been full members of every course team.

It also followed that the number of members of staff acting as course team chairmen increased very greatly. No longer was it true that the Dean was the course team chairman and doubled in two administrative roles. As more and more junior members of staff became course team chairmen, so the difficulty of maintaining the balance of control became more acute. Course team chairmen tended to be chosen because they were expert in the subject matter of the course concerned. This unfortunately did not mean that they were necessarily skilled administrators. I have gradually become convinced that course team chairmen should be appointed for their managerial skill, not because they are expert in the subject matter of the course. Yet it is easy to see that this could create a tricky situation. If a course is clearly the academic product of one or two key members of staff, it is hard to insist that another member of staff should be given the responsibility for controlling the content of the course. I have little doubt that there will be fierce arguments over this question in the years to come.

A course team's job was not over when the course was written. Every year new assignments had to be written and new examination papers prepared. Furthermore, we were not infallible; we made some bad programmes, we wrote some bad texts and we had to correct these errors as soon as possible. There was thus an ongoing problem of maintaining existing courses, which was tackled by what came to be called 'caretaker course teams', small groups of people whose prime responsibility was to keep the course up to scratch throughout its life. We had originally fixed the life of each course at four years, because we were determined to ensure that outdated courses should not be used simply because of a shortage of funds to remake them. I had therefore insisted that the University should not be empowered to extend the life of a course without the agreement of the course team which had made it. This provision, while it can make things very difficult for the University, has the merit of giving those who create a course the authority necessary to ensure that its standard is maintained.

Although I had originally envisaged that courses would be written much faster and that they would be much shorter than they turned out to be, I had always allowed for an 18 month period of gestation. Thus courses for one year would be in preparation at the same time as courses for the following year. In fact it now takes much longer than 18 months for a course to be thought of, designed, written and produced. Furthermore, with correction and maintenance as ongoing tasks we are not completely free of a course once it has been written. Thus an individual member of staff may be directly concerned at one and the same time in several different courses, all at different stages of preparation and maintenance. This imposes further strains on the staff, who can never concentrate on just one new course.

It is in the individual course team that one finds the drive for innovation that is an essential part of maintaining the Open University in good health. There has been no shortage of new ideas, many of them extremely good ones, about how to create better courses. Even amongst the foundation course teams innovative ideas emerged. For the foundation course in the Humanities, for example, the course team produced gramophone records which were distributed to all students in order to cover some aspects of their musical education. The course team for the Mathematics foundation course, determined that all students must learn the basic techniques of computer programming, arranged for the setting up of the Student Computing Service, which enabled students to have access to computer terminals in study centres, the terminals being linked to one of the computers that we installed in each of three different regions. Great inventiveness was shown by the Faculties of Science and Technology in devising home experiment kits to enable students to acquire necessary practical experience. Course teams frequently arranged for the production of readers, consisting of reprinted extracts from the literature, to provide students with source materials which they would find impossible to obtain from their local libraries. For the foundation course in Technology, all students were supplied with tape recorders which enabled us to distribute pre-recorded tapes. These were just a few of the many ideas put forward from time to time by individual course teams.

We now have very tight financial constraints on every course team, but when the foundation courses were being written there were very few since we had no idea of what the whole process would involve or what the overall cost would be. Furthermore, we had not then developed a workable cost control mechanism. Nowadays course teams put up an overall plan for their course requesting financial support, and within the limits of their overall budget, their new ideas will be implemented if they are practicable. But practicability is not just a question of money. The ideas must be workable in the distance teaching situation and must be compatible with the regional structure of the University.

What, then, have we learned from our experience of the course team method? There seems to me no doubt that a course produced by this method will inevitably tend to be superior in quality to any course produced by an individual. The concept of the course team is, I believe, the most important single contribution of the Open University to teaching practice at the tertiary level. It is, however, true that it is a very expensive way of writing courses, that can be justified only if the course materials are used for a very large number of students. It is not, therefore, a method that can easily be adapted to the needs of conventional institutions and, perhaps, they do not need it. If they make mistakes in the initial presentation of their courses they can, in the face-to-face situation, correct these mistakes and put them right. Yet I believe that there ought to be a modified form of course team control of courses in all institutions. I think it would be advantageous for a course team to be made responsible for the syllabus of every course, even if the detailed presentation of the material within the syllabus were left to the usual methods of classroom teaching and individual departmental control.

If other institutions were to adopt courses already prepared elsewhere by the course team method they could be saved all the expense of initiating their own courses. On the other hand it is difficult for academics to accept that anybody else can teach their subject better than they can. Our teaching materials are however already being used by many other institutions in this way. The potential danger that if this practice were to be adopted too widely, the dull hand of uniformity might adversely affect our university teaching can be easily exaggerated, for the commentaries of staff using the same basic course materials would still be personal and idiosyncratic. The method of course construction typified by the course team approach can be applied to courses of any kind and is by no means appropriate only to university level. It could be used for school teaching, in colleges, or in adult education. Indeed, we are frequently approached to give advice on these matters by countries in the third world whose educational needs are far removed from the provision of traditional types of university education on the British pattern.

I believe that the validity of the course team approach has been proven by the quality of the materials that the Open University has produced to date, which are second to none anywhere in the world. This is not said in any mood of complacency, for I believe we still have a great deal to learn. We are not very good at arranging that the feedback obtained from our students is adequately used in improving the quality of our teaching materials for following years. We are not yet good enough at incorporating new ideas into the pattern of the courses themselves. Sometimes we fall down very hard because a course team doesn't 'gel' and fails to produce the materials on time. There is no sanction that can be applied to creativity. You cannot make academics write good courses, you can only provide encouragement and facilities and an ambience in which they can indulge their creative impulses.

The fact that the academics creating our courses are full-time members of the staff of the institution seems to me to be all-important. This factor of primary loyalty has often, I think, been overlooked. Many institutions across the world have tried to prepare multimedia courses by contracting very skilled, very distinguished academics on the staff of other universities to make the necessary programmes. On the whole, these have been failures and the primary reason for this, I believe, is that the academics so contracted give their primary loyalty to the institution that employs them full-time. They take on the task of making a multimedia course for another institution as an additional chore. They may do it well, but they are not primarily concerned with the welfare of the students to whom these programmes are directed. They are much more concerned with the students in their own institution. Consequently, the editing, re-writing, polishing, changing and adoption of the educational technologists' ideas are not so readily undertaken in a situation of this sort. I am quite sure that we were right to employ as our main course creators full-time academics of the Open University, and to eschew the original idea of the Advisory Committee, and indeed of the Planning Committee, of using mainly consultants or people on secondment from other universities. Our success in creating courses, in other words, seems to stem from the fact that those who joined the Open University staff put their whole careers at risk. Their success was contingent on the success of the Open University. This is never true of someone on secondment.

Before closing this account of course creation it would seem appropriate here to touch on the vexed question of academic freedom. In a conventional university this includes *inter alia* freedom to teach. That freedom is not unqualified. Any university teacher is told the titles of the courses that he is asked to undertake. He may request permission to offer a course on a different topic and that request may or may not be granted by the department or, indeed, by the Senate of the university. But once he is given the task of teaching a particular course he is not constrained at all in how he presents it, in what opinions he inculcates in the minds of his student audience, or in his choice of illustrative material. In this respect conventional academic freedom would not, and could not, be available to members of staff at the Open University. This was made clear to all those who joined the staff of the University during their initial interviews; the need to put the control of teaching in the hands of teams rather than of individual departments or of individual members of the academic staff was made abundantly plain. The loss of academic freedom is greater the larger the size of the team responsible for a particular course, and this is especially true when a course is inter-disciplinary, for larger teams are absolutely vital when creating multi-disciplinary courses.

Members of staff take to this new situation in different ways. Some find it relatively straightforward, others extremely difficult. There have been some bonny fights in course teams before opposing views of the method by which any particular topic should be treated have been recon-

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ciled. It is of course healthy that there should be such differences of opinion. The outcome of the argument and the final compromise may take away something of the sharpness of one particular view but, on the other hand, what is left is likely to represent an agreed synthesis of what is most important in the topic concerned. In some cases where the differences of view are so important that students should be made aware of them, it is perfectly proper for the course team to present both points of view in the text so that the students can see that there is no consensus amongst their teachers, or indeed in the world at large, and can make up their own minds on the question. Nevertheless it is unarguable that team responsibility implies a loss of freedom of action on the part of the individual teacher in determining what is presented to the students.

A second limitation on individual academic freedom stems from the fact that the courses are not lectures presented in private behind the closed doors of a lecture theatre to a relatively small group of students. They take the form of course materials that are open to view by the world at large, presented in open-circuit broadcasts, and in texts which are on sale in bookshops. It follows, therefore, that what is taught to the students is open not only to their criticism, but also to that of students in other institutions, of professional broadcasting critics, of politicians and of the general public. This very openness results in the academic staff responsible for designing the courses taking greater pains over what is offered than they would if they were presenting such materials behind the closed doors of the classroom. Statements will tend to be hedged in with reservations and qualifications, rather than made boldly and vested in the authority of the pedagogue. Furthermore, the teacher must recognise that most of the cost of the exercise is being paid for out of public funds and must wonder just how those responsible for the disbursement of public funds will react to what it is that he is telling his students.

If there is a loss of academic freedom for the individual there is an even bigger one for the institution. The students of the Open University pay fees but these represent only about 15 per cent of the actual cost of the teaching. The rest is paid by central government in the form of a block grant to the University amounting in 1976 to over £20 million. The situation is the same for all universities in the United Kingdom, but there is a convention that, although the government pays for most of the cost of university education, governments do not interfere with the freedom of the universities to teach. This restraint on the part of governments has been meticulously honoured over the years, but the power to interfere, to intervene in what universities teach, always remains with the government. The fact that it is not used is solely a convention, and there are no rules about the matter. The new feature of the Open University is that it commands considerable time on the mass media. The effect of its teaching can potentially spread very widely and have a powerful impact. The student audience is enormous by comparison with that for any individual lecture in a conventional university, and there is always the possibility of an overspill audience of almost unlimited size.

There are therefore two sources of political power potentially available to the Open University. In the first place total academic freedom on the part of all its staff could lead to use being made of the teaching programmes to indulge in polemic, enabling an individual member of staff to preach disaffection or even sedition to a very large audience. In the second place, when institutional control is imposed on the content of courses, the institution could use this power of control for propaganda purposes. It is therefore essential, in my view, to the survival of an institution of the nature of the Open University to recognise that its freedom to teach precisely what it wishes cannot be total. It must be extremely careful, in its choice of courses, to avoid the charge from any political party that its freedom to use the mass media is being misapplied. In consequence, it must retain some sanction over the individual teacher, and this is another root cause of loss of individual academic freedom.

In the traditional universities the main objectives were to teach, to research and to nurture scholarship. To these modern society has added two more: first, to provide services to government, industry and society through, for instance, work on advisory committees; and second, to promote the educational wellbeing of the community, largely through the extramural departments of adult education. Yet the highly selective system of university entry in the United Kingdom, which leads to a low drop-out rate amongst student entrants and a high quality of degree, also means that higher education is offered only to a relatively small fraction of the population. It was the elitism and the preservation of the meritocracy, implicit in the traditional university system, that led Harold Wilson to propose the creation of an Open University which would provide an opportunity for anyone, and which would harness technology to the service of education. These aims for the new Open University appeared to be unexceptionable, yet are they? There has been in recent years an explosion in communications, and travel has become available to many people. Post and telegraph, telephone and radio have brought instant availability of news from across the world to everyone. The development of the mass media have given such news an immediacy and an impact that they never had before. In consequence the public at large has become aware of and concerned about problems on a global scale, and increasingly demands a right to participate in finding solutions to them. A great increase in the education of the adult population adds to all this an understanding of the problems, and understanding brings in its train intensification of all the other effects. The introduction of mass education thus makes a return to elitism and to meritocracy more unlikely, and there are therefore quite clear political implications in the creation of the Open University, whether these are regarded as desirable or not.

It would have been perfectly possible for the Open University to have been given, quite overtly, a further political objective, namely that of offering courses which were themelves designed to change society. This was prevented in a sense by the very conventions that are set up to safeguard the academic freedom of all universities. But a new innovatory institution with access to the mass media undoubtedly attracts staff who are left of centre. Nearly all universities tend to attract such staff, for radicals seem to flourish in the academic community. Undoubtedly this tendency was, for a variety of reasons, intensified in the creation of the Open University, some of whose staff have an avowed personal objective of changing society. When such people are employed by conventional universities to teach behind the doors of the classroom, polemic on their part is acceptable. It is then an understood part of the life of a university, but when polemic can be transmitted through the mass media it is much less acceptable. The Open University has faced this intrinsic dilemma from the beginning, but it becomes more intense as the courses become more specialised and deal more directly with the global problems that face society today.

Should an institution like a university have the objective of changing society? Should it take a public stance on the issues of vital importance to mankind? Certainly individual academics must and should take such stances. Universities raise no barriers in their recruitment policy on the grounds of race, colour or creed and this is implicit in the charter of every one of them. We would therefore expect a community of scholars in a university to exhibit all shades of opinion on global issues. In my view this is the essence of a university community. On the other hand, I believe that it would be contrary to the spirit of a university that the institution itself should adopt a stance or policy simply because it is favoured by a majority of its staff at any one time. The institution should stay clear of such involvement, accepting that all members of its staff have their own individual views and that the melange of all these views will have its own impact on society without the institution itself proselytising for a majority view.

We have, over the first six years of our life as a teaching institution using the mass media, avoided any major confrontation outside the university in relation to the choice of materials that we teach and the way that we teach them. This is not to say that there has not been criticism. It comes to me in a variety of forms—such as letters from members of Parliament or hurt reactions on the part of a company or a public association—but to date we have managed to give reasonable answers to these representations and there has been no major row. At any moment such a confrontation could blow up into a cause célèbre, but on the other hand we may well continue to muddle through in true British fashion.

There remains a much more difficult question. The methods used by the Open University to design its teaching system are now under close examination by a number of countries interested in adopting them for use in their own societies. This interest stems from the growing knowledge across the world of the high quality of Open University materials and of the relative cheapness of this way of providing an education. More sinister is the realisation in certain countries that our methods keep students off campus, and campus populations have become a major political threat in a number of countries. A further attraction of the Open University system, especially in the third world, is that it enables the maximum use to be made of a very small number of skilled teachers, who are often scarce in such countries. If such a system is introduced in countries with a less liberal form of government than ours then the dangers that I have been describing are intensified. There is a very real possibility that a despotic government could use it as a vehicle for propaganda. On the other hand there is also the danger that an Open University system which got into the hands of dissidents could be used as a vehicle for revolution. There are no guaranteed ways of avoiding these dangers, but it is as well to be constantly aware of them.

Article 9

"The Role of Instructional Design in Telecourses"

by
Leslie N. Purdy

In the years since broadcast television was first used for formal adult instruction in 1956 at Chicago TV College, different systems for planning and developing courses have been tried. In the last ten years, the basic telecourse format of twenty to thirty television programs, a text, study guide, and testing materials has become established, as has a commitment to using principles of instructional design in all phases of production. But the use of the systematic approach, which is basic to instructional design, is not some idealist's dream. As Mittelstet says, "these are methods that have evolved and tend to work well . . ." (p. 53).

But what is "instructional design," and how does it help to ensure the production of quality telecourses? In general terms, instructional design is a process used to ensure that students can learn from a particular course. It is based on the idea that the first responsibility of producers of a telecourse is to students. No student should fail or become frustrated because of poorly presented or inaccurate content, confusing course goals, inappropriate expectations of the students, or inconsistent information over exactly what students need to know and do to pass the course. So, someone with responsibility for the design of the course participates in its development as a representative of the students who will ultimately take the course. The goal of design is that each student will learn what the course intends to teach.

The Purposes of Instructional Design

The specific purposes of instructional design are to: (1) select appropriate instructional strategies for the target audience; (2) state course goals and specific instructional objectives in terms of student learning; (3) ensure internal consistency and integration between course components; (4) ensure that course content is accurate, appropriate, clear, and unbiased.

Details of the process of designing specific telecourses differ somewhat, although the major steps seem fairly similar for most major producers of telecourses in the United States. The model used by the Dallas County Community College District, The Coast Community Colleges, the Southern California Consortium for Community College Television, and Miami-Dade Community College has resulted from cooperative production and use of telecourses. This model has been described by Mittelstet (1979), Pohrte (1980), and Purdy (1980). A design process used by Wayne State University in its production of a life science course followed similar steps, but also involved adult students in formative evaluation during production (Baba, Schermer, and Shifrin, 1980).

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From *A Telecourse Sourcebook for the 80's,* Louise M. Hewitt, Ed., Coast Community Colleges, 1982, pp. 41–53. Used by Permission of the Coast Community College District.

Even more formal and extensive formative evaluation has been a part of the design process for instructional television from the University of Mid-America (McBride, 1976, and Aversa and Forman, 1976). The process used by the British Open University (O.U.) in its production of distance-learning courses is described by Holmberg (pp. 99–100, 1981). While role of television programs in O.U. courses differs somewhat from American telecourses, O.U.'s use of educational designers and principles of instructional design are quite similar.

Common to all of these models of telecourse design are three elements: (1) identification of the intended audience for the telecourse; (2) a design and production organization consisting of a team of experts; and (3) course goals and specific instructional objectives stated in terms of demonstrable student behavior and activities. This article will describe each of these elements and give illustrations of how they have worked in the production of telecourses.

Selecting Telecourses for Production

Design and production of a telecourse takes between twelve and twenty-seven months of work by a staff of between ten and twenty-five people. The budgets range from about $100,000 to more than a million dollars. Consequently, the decision to produce a course is not made quickly or easily. Selecting a telecourse requires collecting much information about a proposed topic.

Figure 1 shows the general stages of telecourse production as followed by Coastline Community College and KOCE-TV (both of which are part of the Coast Community College District). Many "design" decisions are made in the stages represented by the first two boxes in Figure 1, long before course production begins. These decisions are based on what the Coastline College staff calls "pre-course research." The decisions may include the audience to which the course will be directed, the textbook or other required print materials for students, possible publishers and co-producers, the number of credits and the academic level of the course, and the number of television programs. In general, the pre-course decisions focus on the curriculum and the target audience of the course.

In clarifying the curricular aspects of the course, precourse research must review many sources. For example, a proposal is made to produce a telecourse in the area of interior decorating. A search of college catalogs reveals that the course is common in two- and four-year institutions across the country, but it has different departmental affiliations: home economics (often called "home and family living" in two-year colleges) or fine and applied arts. The course is almost always listed as a transfer course for which a student will receive three units of credit. Further research and consultation with faculty consultants reveals that a crucial difference is whether the course serves as the introductory course for students who eventually want to be certified and licensed interior decorators or whether it is used by students as "elective" credit. Another way to look at the differences is to determine whether the course focuses on the theory and principles of design or on the application of those principles. Course outlines are collected and compared and possible textbooks for the course are identified and evaluated. On one hand, the producing institution decides it does want to serve the large audience of adults who want to take a home decorating course for self-enrichment purposes. However, it is also decided to design the course as a transfer course, including basic principles of design.

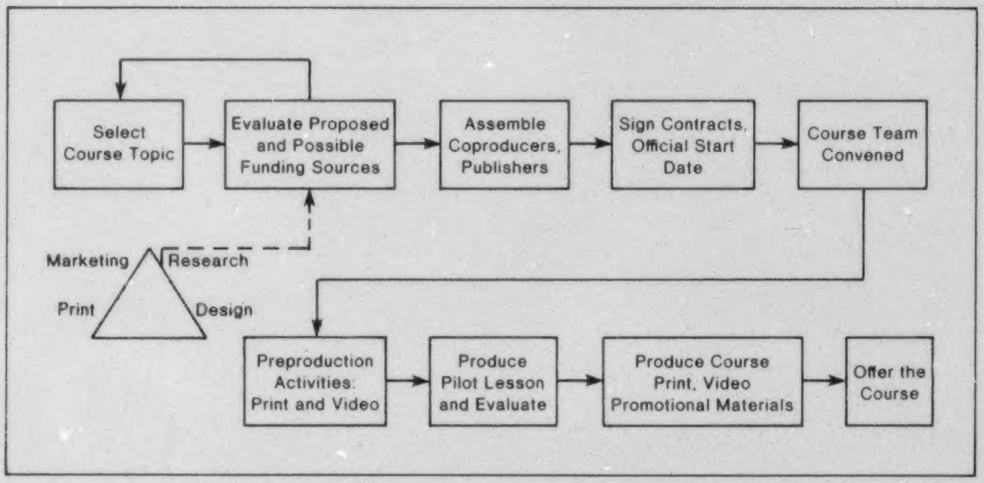
Select Course Topic
Evaluate Proposed and Possible Funding Sources
Assemble Coproducers, Publishers
Sign Contracts, Official Start Date
Course Team Convened
Marketing
Research
Print
Design
Preproduction Activities: Print and Video
Produce Pilot Lesson and Evaluate
Produce Course Print, Video Promotional Materials
Offer the Course

Figure 1. The stages in telecourse production.

In order to ensure academic credibility, a textbook is selected which has a strong record of adoption in two- and four-year institutions. It also is a highly readable book with visual appeal. Further, it is decided to have an academic advisory committee which includes faculty members from two- and four-year institutions, as well as practicing interior designers who can provide practical consumer information.

The above description summarizes the precourse research and decision-making process that led to the production of "Designing Home Interiors" coproduced by The Coast Community Colleges and the Rancho Santiago Community College District in 1978. The descriptive materials for the course state that:

> Designing Home Interiors meets the needs of the person planning his or her own home environment, whether a mobile home, apartment, single-family dwelling, or condominium. This course also fulfills the requirements of an introductory interior design course within one-year certificate program, a two-year degree program, or a transfer program for a four-year institution ("Designing Home Interiors," p. 1).

The example of the curriculum assessment and pre-course research for "Designing Home Interiors" demonstrates the complexities involved in selecting a course topic. Once the decision is made to produce a course which meets various local, state, and national curricular patterns, that decision sets the broad mandates under which the team of people who design and produce the course must operate. To a large extent, it also determines the target audience for a course.

Research has uncovered the general characteristics of telecourse students. However, the general profile varies considerably from course to course. For example, students taking a child development telecourse will differ greatly from those taking an astronomy telecourse, even though both courses may be offered as undergraduate, transfer, three-unit courses. Students taking child development may include public school teachers seeking updated information on child psychology, adults wanting a how-to course in parenting, psychology majors filling the requirement for courses in their field, and students with other academic majors filling general "social science electives" requirements. This illustrates an important fact about a telecourse audience: the audience is not one, but many. The challenge becomes producing a course which serves the needs, interests, and abilities of a diverse group of people, whose characteristics the course team can only roughly predict. Munshi (1980, pp. 9–11) has attempted to describe telecourse audiences by type of telecourse. And Pohrte (1980) has outlined some of the procedures which can be used to identify a potential student population and its needs. These are important advances in the effort to learn more about telecourse audiences.

Once the overall dimensions of the course content are outlined, the basic purposes of the course listed and the target audience identified, the process of designing and producing the course can begin.

The Course Team and How It Functions

The telecourse design process at The Coast Community Colleges is based on a concept where specialists in academic content, instructional design, video production, and publishing are brought together as a team specifically assigned to develop the course. This is the first step taken after the precourse research is completed, funding is secure, and contracts are signed (the fifth box in Figure 1). Figure 2 graphically depicts the primary members of the course team. Often, the instructional designer serves as the course team chairman, coordinating the schedules of production for the various course components. Each of the four primary team members directs or coordinates the work of additional personnel responsible for specific activities, including clerical and technical employees.

As mentioned earlier, the concept of a team organization for production of telecourses is a common practice. In the early days of the British Open University, Sir Walter Perry explained his reasons for the team approach.

> First we had to have not only just one university teacher, with his thoughts and ideas about the objectives, contents, and methods of presentation of the course, but several because our courses were to be multi-disciplinary as well as multi-media in nature. This, in turn, meant that each teacher would have different and inevitably conflicting thoughts and ideas which would somehow have to be reconciled with each other to lead to an agreed final version. Second, since the university teachers . . . would mostly be unfamiliar with the special problems both of educating adults and of teaching at a distance, we would need the advice of other experts, in particular educational technologists and television and radio producers, in order to determine the method of presentation of the course (Perry, p. 77).

In the United States, use of multiple academic advisors often occurs because telecourses are coproduced by several institutions, and it is important for eventual acceptance and use of the telecourse that a variety of academic and institutional viewpoints be represented. As is implied by Perry, membership on the course teams may be for practical as well as instructional reasons. Mittelstet also observes that "the amount and scope of faculty participation increases as the target audience of the telecourse shifts from one that seeks personal enrichment and self-improvement to one that desires 'academic transfer' for a higher academic degree" (1979, p. 58). Academic participation may also come in the form of special consultants or an advisory committee which functions to review the content decisions of the course team. Examples of various ways faculty members have been included in the production of telecourses are described elsewhere.

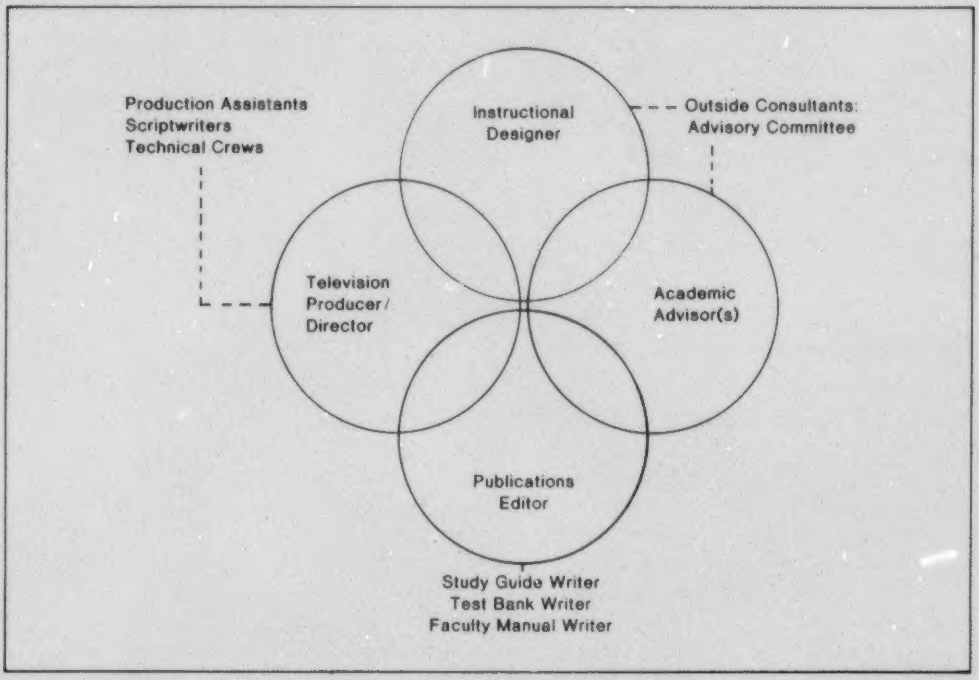
Production Assistants
Scriptwriters
Technical Crews
Instructional Designer
Outside Consultants:
Advisory Committee
Television Producer/ Director
Academic Advisor(s)
Publications Editor
Study Guide Writer
Test Bank Writer
Faculty Manual Writer

Figure 2. Course team.

The course team will function throughout the process of development of the telecourse, although some members will join early or complete their assignments before the completion of the whole project. For example, the work of the instructional designer and academic advisors will be extensive in the early stages of planning the overall course content outline. The television producer, while participating in early stages, will begin heaviest work at a midpoint in the project and not conclude until all post-production activities have been completed. Maintaining integration of content and learning strategies as production of each course component proceeds under the direction of several staff members and perhaps in different locations is another reason the core team members must keep in close contact and have a shared understanding of the course purposes and content parameters.

The Course Design Elements

In most telecourses, the basic structure of the course—its sequence, topics, breadth and depth of content presentation, and overall goals—is established early in the development process by the course team members, especially the academic advisors and the instructional designer (this part of the process is included under the general heading of "Preproduction Activities" in Figure 1).

A major commitment of instructional design theory is that all statements of course goals and instructional objectives be presented in terms of demonstrable student behavior or activities. For example, the telecourse "The Growing Years" produced by The Coast Community Colleges and the University of California at San Diego, in association with McGraw-Hill, Inc., has the following course goals:

By the end of the course, students should be able to:

- Recognize genetic, biological, environmental, and sociocultural influences on development.
- Identify and discuss some of the most important aspects of normal physical, mental, and personality development.
- Relate child development research and theory to real-life situations.
- Recognize the diversity of approaches in child development research and theory.
- Distinguish between the popular conceptions of rigid developmental stages and the actual flexibility that occurs in the developmental process.
- Demonstrate openness and objectivity toward issues, theories, and orientations in child development ("The Growing Years," 1982, p. 4).

These goals represent the combined efforts of two- and four-year academic advisors to describe a course which would be useful to the multiple audiences for this course: people needing practical information to help them parent or teach or counsel children and students whose goals may be a major in psychology or perhaps a career in that field. The advisors shared a concern that students taking this course should be exposed to and exhibit an attitude of objectivity toward the subject matter. This last goal demonstrates the important fact that telecourses, like any form of education, have underlying values which students are expected to learn, even though the values are often implicit rather than explicit in the educational process.

Although the course goals are stated in terms of student performance, they also serve to set overall course themes and content parameters. Thus, in the television programs for the child development course, effort was made to show more than laboratory research concerning child development; children are seen in their natural settings in home, school, and at play with peers. Since at least part of the target audience would be students filling general education requirements with this course, the course team members assumed that students might not be familiar with the specific changes in physical, mental, and emotional abilities of children at different ages. Consequently, throughout the series, the programs presented children demonstrating those changing abilities.

After the course goals are selected, the academic advisors and the instructional designer propose the specific lesson topics and instructional objectives for the course. The lessons correspond to the number of television programs and to the number of chapters in the study guide for the course. These topics usually reflect not only the preferences of the advisors and the conventional topics included in similar courses across the country, but they also are an expression of topics, sequence, and approach of the textbook chosen for the course. Thus, for example, the textbook for "The Growing Years" is *A Child's World: Infancy through Adolescence* (McGraw-Hill, 1982), which has as one of its themes the interaction of genetic, biological, environmental, and sociocultural influences on development.

Instructional or learning objectives are developed for two reasons: to help students know what is expected of them throughout the course and to help maintain order and direction in the production process. Each lesson usually has between five and ten objectives, which are listed for students in the study guide chapters; each television program may treat from three to five of the objectives, depending upon the visual potential and the importance of each objective. Text or other print information is available for the students on all of the objectives. To complete the process, the evaluation instruments prepared for the students reflect the instructional objectives.

It has not been clear from research how much students have used and profited from the reading of instructional objectives as they proceed in the course. But it is clear that students in distance-learning situations appreciate and do well in courses which have an appropriate and logical instructional design. Holmberg's conclusion regarding objectives summarizes the issue: "Although it is thus rather uncertain as to what extent and how students benefit from reading a list of specified learning objectives, there can be little doubt that they serve a useful function as planning devices, as control instruments to be used by course developers and as eye-openers to the developers when they confront their pet subject areas with the needs of the students" (1981, p. 46).

Other Design Decisions

If the process of design ended with the completion of the goals, lesson topics, and instructional objectives, most participants in the production process would conclude that the process is fairly easy. However, after the basic design elements are established, then they must be implemented in each of the course components. For example, decisions need to be made about the television series treatment: Will the programs have a host? Is the host an academic who presents some content on camera? Or, is the host an actor who serves to introduce topics and becomes a familiar face for students throughout the series? Will the programs use existing films or will original filming and taping be necessary? Will there be a need for special technical effects such as animation? Are there technical requirements for the programs to meet broadcast specifications and to appeal to a nonstudent viewer audience as well as provide instruction? Will experts appear and be interviewed throughout the series? The answers to each of these and many other questions about the program treatment have instructional as well as programmatic and technical aspects; thus, they involve the producer, the instructional designer, and content advisor. These decisions are also influenced by practical considerations of the course production budget, the production resources available, and the project timeline.

Other important decisions implementing the basic design of the course involve the role and appearance of the study guide in the course. Most research confirms what the Dallas County Community College District has found about the study guide: "Regardless of the quality of the video program or the other print materials, student surveys consistently rank study guides . . . the most useful single component of telecourses" (Mittelstet, 1979, p. 54). Just as the process of producing telecourses has evolved through the years, so has the role and format of study guides for telecourses. Often each chapter contains the lesson objectives, an overview or summary of the lesson, preview of the television program which matches the lesson, a list of assignments, a list of key words and concepts in the lesson, various kinds of study activities, self-testing materials, and optional assignments or enrichment information. Sometimes the study guides contain additional content as a supplement to the textbook and television programs. Other times, the study guide serves as a book of readings as well as a study guide. Further, the study guide needs to be readable, and its format should be simple and attractive. Thus, establishing the study guide contents and format is an important aspect of the course production process.

Many other decisions need to be made during the course production process. Each course is somewhat unique in this regard, but the following list suggests a few of those decisions:

- What other instructional components are necessary? For example, perhaps a separate book of readings, supplemental audiotapes, or special activities packages for students are necessary. In a humanities course from the Dallas County Community College District, "In Our Own Image", students use a booklet of high-quality color art prints of masterpieces to augment those original works of art that may be available to them in their particular communities.
- What evaluation instruments will be prepared to go with the course? Commonly, course design includes preparation of a bank of objective test items which are keyed to the instructional objectives for the course. However, essay questions and recommendations for other assignments for students which may become the basis of student grades are also often prepared for instructors.
- What other information and recommendations are needed by the faculty members who will actually implement the course on college campuses once the course is completed and broadcast? Not only do local instructors need to be informed about the reasons behind all academic and design decisions made during course production, but resources such as bibliographies, suggestions for student assignments, and background information about the television series will be a great help to the local instructor.

Conclusion

After reviewing the details of the design and production process followed by one institution, it's useful to look at the larger question of the role of instructional design in this total process.

Some telecourses have been produced without instructional designers and without following the principles of instructional design. Sometimes the results have been satisfactory, other times dismal failures. Often, a good producer and/or content advisor will formally or informally assume the functions of the instructional designer, providing an order to the curriculum planning and production process.

While there is much that the field of instructional design can contribute to effective instruction in telecourses, instructional design will not help if the content and the production aspects of the course are weak. This problem is personified by the members of the course team. Is the designer a technician, reacting to the leadership roles of the producer and academic advisor? Or can the designer best integrate the course's dual function of instruction and entertainment and should therefore be in a leadership role? In order to maintain a leadership role, the designer must have knowledge of both production techniques (print and video) and course content. Since few designers exist who combine such training and experience, advocating a larger role for them on the course team is probably a moot point. What will continue to happen in most instances will be an initial jockeying among the course team members for the leadership role (regardless of whether a course team manager is formally appointed or not) until the person with the most knowledge and leadership ability assumes *de facto* direction for the course team. Even if the team leader is not an instructional designer, the most successful telecourses will be those where a functional balance exists between the contributions of all the members. Leaving out or short-changing the expertise of design, production or content will produce a course which will fail in one aspect or another.

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Article 10

"The ITV Writer and the Project Team; There Is No 'Captive' Audience"

by
Kenneth G. O'Bryan

Even with the sternest disciplinarian in charge of a class with every student physically locked into place to view an Instructional Television (ITV) program, there is no guarantee a single pupil is actually paying attention to the goings-on presented. Minds are free to range, and eyes can easily watch, but not see, the television screen. There is no such thing as a captive audience.

Writers for instructional television must use their every skill and art to capture the interest as well as the physical presence of the learner if they are to succeed. Unfortunately, this axiom is all too often ignored or neglected by ITV writers; thus their programs are often dull, lifeless, and unsuccessful.

It is also important that the ITV writer understand the role of television in the total learning process. Television is one tool available to the teacher, one resource available to the student, and therefore must compete with other resources within the context of the limited hours of a school day. However, it is one of the most powerful and persuasive tools available.

By nature, and as a result of the expectations created by a generation of viewers, modern television production demands that the target audience be interested, held, entertained, and promptly released from undue concentration. Although it is true that instructional television is primarily a part of the learning business, its medium is essentially show business. To neglect or fail to understand that expectation of the target audience is to lose an enormous instructional advantage.

In North American television, the physical attention span demanded of the viewer for uninterrupted action is rarely more than eight minutes at a stretch. Current programming styles are progressively shortening that demanded attention span, however, as production techniques and budgets allow more changes of scene and greater variety of locations.

In but very few instances, current television does not demand an intense, *active* participation of its viewers over a long period of time. This is especially the case in children's programming where movement, pace, and changing levels of interest and intensity have been the hallmarks of most of the successful ITV and general television (GTV) programs. The exceptions to this principle have benefited by being exceptions. They offer a contrast in pace and style to the norm, but even these few do not require the viewer to attend to a single subject area or static production style for a long period of time.

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It is important to understand the differences between active and passive participation. There is plenty of evidence to show that almost all television viewers can sit in apparent concentration in front of a TV set for exceptionally long periods of time, but it is less certain how much active learning is actually taking place. This may not be particularly critical for the GTV writer, who needs only to attract and hold an audience through successive commercial breaks. It is, however, devastating to the ITV writer, who must not only hold the audience's attention, but simultaneously convey, have understood, and cause to be retained, learning which is often complex, difficult, and non-motivating.

As a result, the ITV writer is in a much more complex position than is the GTV specialist. Constrained by the demands of the program's instructional design group and the restrictions of the educational system, the ITV writer takes his or her low-budget production into almost direct competition with everybody's view of what television should be.

It is not surprising, then, that only a relatively few good writers work full time in ITV. The financial rewards are often conspicuously lower than in the "real" world of GTV. The constraints and restraints are infinitely more difficult to work under than in the more explicit field of GTV writing where the only recognized "bottom line" is the ratings. While the competition there is tougher, at least expectations are clear and success can be substantial.

The best writing for ITV is usually done by a few professionals working on a limited number of productions, but the bread-and-butter programming seems to be written by good educators with a flair for words who understand only minimally television production techniques and who have almost no training in writing the visuals side of the television script. In fact, almost everyone associated with ITV gets into the script writing business. Instructional designers write; formative researchers write; educational project leaders rewrite; directors rewrite; and, occasionally, even administrators write. In short, many talented people are writing for ITV, but few are professional writers.

Freelancers with time left over from commercial work are sometimes hired to script the bigger budget ITV shows. This can produce a program achieving positive target audience reactions but negative (sometimes disastrous) results for the educational content. It may also produce an increase in resistance to the use of ITV by educational agencies and teachers.

Some production houses have full-time writers on staff. Large agencies may have a stable of writers, but this is relatively rare and, in most cases, few of the writers in the stable have set out to be *specialists* in ITV script writing.

In summary, there are a few fine professionals and many talented, but underdeveloped, amateurs writing for ITV. Regrettably, the resulting standard of writing is (with a few notable exceptions) relatively low, as reflected in the number of unsuccessful programs that succeed in turning audiences off, rather than on to ITV.

An axiom that applies to the whole range of television production holds that a poor show can always be made from a good script, but a good show is rarely produced from a poor one. Writing is extremely important to successful production, and yet, ITV writing is often seen as no more than stringing together facts in a clear, educationally acceptable manner. Programming with that view in mind, however, fails to use the dynamic visual characteristics of the medium, and instead presents its content as though television were a superior form of radio, an inferior form of print, or an unwieldy substitute for the filmstrip projector.

Instructional television must, therefore, be treated as a specialty medium with its own principles, procedures, and styles. Many of its needs and the means necessary to meet them may be found in the environment in which ITV is produced and within which the writer must function.

The ITV Writer's Environment

ITV writers work in a special environment born of the mix of television, education and research. Unlike their GTV counterparts, ITV scripters are accountable in the course of production to an array of educational specialists. Therefore, most major producers of ITV re-employ the project team approach to creation, execution, and completion of a program or series. The project team's actual composition varies from agency to agency, but a typical team will include the following members: project leader, instructional designer, academic, psychological or educational consultant, researcher, producer/director, utilization person and writer. The ITV writer must learn to function as part of that team, sometimes as its leader, but more often simply as one member working with each specialist in the course of the production process.

In a few instances, the commercial approach is used whereby the writer and director are free to write, design, and execute their production unassisted and unhampered by educators. This, however, has become increasingly rare as ITV dollars are more closely pegged to public demands for accountability. Consequently, this manual focuses on the more common case of the production house with a full complement of professional educators, drawn from universities and school systems, who work with the writer and director to collectively produce the program.

The Project Leader

The project leader, drawn from almost any internal specialty area, functions in much the same way as does an executive producer in general television, as a coordinator responsible for scheduling, policy setting, budgeting, and general management of the project from conception to delivery.

In agencies with a strong educational orientation, the project leader is often found in the instructional staff rather than in production personnel. In other agencies, the producer/director occupies the role. It is quite rare for the writer to lead the team except in special cases where an agency's head writer is involved. Usually, the project leader occupies at least one other specialized role in the project team, but the primary task is coordination of the team's work and sequential approval of each stage of the project. Consequently, the writer sooner or later will have to convince the project leader that the script meets the requirements of the team.

The Instructional Designer

The Instructional Designer (ID) is a project team member whose influence on the style, content, and execution of instructional television has increased enormously in recent years. "Instructional Design" as a theoretical approach to program construction is offered as a graduate degree program at the doctoral level in several universities, and specialists are appearing in the field in increasing numbers. They can sometimes overwhelm a project by insisting upon more content than the format can carry, but are nevertheless essential to the project's success.

The ID's tasks in the project team are to develop the writer's guide for the program and to create a complete instructional design for broadcast and non-broadcast materials. The job will involve determining the educational material to be included in the program, the format of the teacher's guide, and the nature of the student's print materials. It will often include the development of an instructional style for the ITV program. Consequently, the writer will be required to create a script whose style matches the design the ID establishes for the program. In some agencies, in fact, instructional design has become so embracing that the program becomes only a part of a "learning system," in which the television program itself, and therefore the script, may actually be secondary or supportive to a larger educational program. Learning to work with, rather than for, the instructional designer is critical to a successful ITV writer.

The Academic, Psychological or Educational Consultant

Almost every project team includes at least one consultant drawn from community, regional, or national professionals in the specialty area.

The role of the consultant is at least three-fold. He or she is the team's academic security blanket who represents the expert advice necessary to defend the project's accuracy in instructional content, especially in controversial areas. The consultant's prestige and knowledge is particularly useful when dealing with official or governmental groups.

A source person in the typical or [sic] curriculum area of the project, the academic or professional consultant can be of real value to both the instructional developer and the writer. A knowledgeable, consistent, and interested consultant is a prized asset to a project team.

The consultant's third role is that of inhouse content critic. Good consultants are usually difficult to satisfy in first drafts, adamant in their demands for accuracy in second drafts, and careful in their reading of final drafts. Poor consultants are those who are too easily satisfied, and very poor consultants get cold feet and decline to approve programs shortly before air date!

The Researcher

Researchers come in at least two distinct types. Program researchers are information diggers and of immediate value to the writer. They can supply the incidental, varietal material and data that can give life, vigor and interest to a script.

Not to be confused with the instructional designer, who is primarily concerned with the educational content and style, a good program researcher will provide facts and information within and beyond the topic and will validate the accuracy of the dialogue, narrative, set, historical scene, or whatever else the writer may invent or need.

The second type of researcher has a very different task and often finds himself or herself involved in some conflict with other members of the team at least once in the project. This is the formative researcher, whose job is to test each or all of the stages of the project on target audience subjects as the program develops. This can involve testing treatments, scripts, segments or pilot projects, as well as non-broadcast and other support materials.

Characteristically, the formative researcher finds more problems than solutions and is distressingly skillful at producing evidence to support findings. Some researchers believe their data implicitly and insist on changes being made to reflect their results. Others, usually those more experienced in production realities, are more cautious and tend to suggest possibilities rather than absolutes. The latter type (from the writer's viewpoint) is more frustrating since he or she offers few real "solutions." In the long run, however, that researcher may be more valuable to the team, since unnecessary and precipitate changes will be avoided while possible alternatives are provided.

New writers are sometimes overwhelmed by researchers' pronouncements and change scripts unnecessarily or unadvisably. The good, experienced writer knows, however, that all results provided by the researcher should be carefully weighed and explanations in plain language should be requested. In the end, the writer must back his or her own judgment or ask the researcher to share scripting credit.

The Producer/Director

The producer's role in general television is akin to omnipotence, but such is not necessarily the case in ITV. If the producer is also the director, then he or she will surely have a strong influence on the program.

In some agencies, particularly large, well-funded organizations, the producer's role is that of project leader and coordinator, distinct from that of director. In such cases the director will be a different person charged with actual audio-visual production of the program. The roles are described as separate entities here, but their functions can, of course, be combined as one person's activity wherein their impact on the project increases substantially.

The producer oversees every aspect of the project and functions in the role described earlier for the project leader. In addition, the producer must develop an overview, or professional "feel" for the ultimate product. Often, the producer is a prior director who has moved on from calling the shots to a more managerial role, and will usually continue to have a close interest in the technical aspects of the production. Sometimes the producer will show much greater sympathy for a director's viewpoint than for that of a writer, given a greater professional interest in the technical quality of a production than in the extent of its instructional impact or in the problems of its writer.

The director is charged with control of the actual production and many a writer in every form of audio-visual production has been amazed at what directors can do with and to scripts. Good directors are technically proficient people who work well with lighting technicians, switchers, sound persons, floor managers, and cameramen. Very good directors have similar abilities but add the facility to work with the on-camera talent. They are also effective in their work with videotape editors. Excellent directors possess all these qualities and one other—they have understood completely the writer's script and its inherent intent. Such directors are very rare, and most often the writer will find his directors to be in the good to very good category.

The establishment of a positive working relationship between writer and director is a key to producing a fine program. On occasion, however, conflicts of viewpoint will occur, some of which can be useful in clarifying intentions and creating new approaches. Adoption of an antagonist-protagonist stance, however, is rarely constructive.

The Utilization Person

More than ever before, accountability is key to the work of agency managers. Many have turned to the utilization staff to ensure that ITV programs are at least used. Consequently, utilization persons appear as project team members at the earliest stages of production design. Their presence can have a marked effect upon the writer's product. One example of their influence is seen in the current trend toward shorter program lengths resulting from information supplied by utilization specialists who report that teachers need more class time to explore the openings made in the topic area.

The utilization person often indicates the changing nature of the various target audiences, describes the expectations of the gatekeepers through whom the program must pass, and sets the general ranges for program budgets by providing data on probable use of the program or series.

As they begin to recognize and exploit the strength of their position in the overall scheme of instructional television, utilization specialists will likely attain even more significance in the project team, and thereby more directly affect the ranges and styles within which the writer must create the script.

The Writer

It is an old adage in the television industry that the key to a good program is a fine script, yet instructional television has drawn relatively few good writers. Given the lack of "hits," low budgets, and lack of glamour, it is not surprising that talented and successful ITV writers move to the more lucrative field of commercial programming once they get the necessary break.

All of this points to the fact that quality writers are *not* drawn to ITV for any of the usual reasons associated with job selection. As a result, many writers of ITV come from agency staffs, from educators who turn to crafting scripts, from freelancers between jobs, and from almost any credible person who can convince an agency to embark upon an instructional television project.

As a consequence, writers, despite their critical importance to project success, are often low on the project totem pole. Sometimes, as is the case with many freelancers, they are irregular members of the team or interact with but one or two of its members. It is understandable, therefore, that writing sometimes becomes subordinate to the needs of the instructional designer, the content consultant, the formative researcher, and the producer/director.

Given the quality of writers available to ITV, such a hierarchy is felt by some to be desirable, but it is the premise of this manual that the subordinate role of the writer is a major cause of low creativity and enterprise in ITV production.

The writer should be a key person on the production project team from topic conception through final acceptance of the shooting script. Thereafter the writer should continue as an integral member of the team.

Article 11

"The Educational Narrative Documentary: From Production Philosophy to Viewer Outcomes"

by
Frances M. Aversa

What makes one educational TV program more effective in terms of its appeal and teaching effectiveness than another? This question poses special problems for college-level telecourse producers, particularly with regard to broadcast quality television designed to be both engaging and cognitively effective.

Today few would argue with Schramm's observation (1977) that learning and achievement are more affected by the techniques we employ in the instructional act than by the medium by which we deliver instruction. Yet once television has been selected as the medium, maintaining the aesthetic integrity of the presentation while both incorporating appropriate instructional design strategies and satisfying content demands is a task that has kept telecourse producers, designers and content specialists guessing and often at odds with one another (Ackerman, 1977).

A Background Sketch

Despite cautions against using programs designed for other purposes as research vehicles (Perrin, 1977), producing two or more alternative treatments of the same program for a research study is usually unmanageably costly. Even were resources available, the complexity of the productions in question makes it difficult if not impossible to define clearly alternative treatments. Yet financially feasible, low budget, experimental segments in which only one or two well defined, carefully controlled variables are manipulated have little transferability to actual productions.

In 1974, Giltrow, Hecht and Katims of the City Colleges of Chicago's TV unit compared the effectiveness of a narrative documentary program from Miami-Dade's "Man and Environment" telecourse and their own complementary local talk show production. Through telephone interviews with 36 actual student viewers, the investigators obtained affective evaluations as well as rough indications of cognitive gain. The results showed an advantage in the cognitive domain for the talk show format and in the affective domain for the narrative documentary.

In this particular case, the comparison was between two real-world productions but those productions covered only complementary content and all data were gathered via respondent self-report. Also, in the tradition of most studies of this nature, the comparison was between two extremes of production approach and quality.

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From Frances M. Aversa, "The Educational Narrative Documentary: From Production Philosophy to Viewer Outcomes," April 29, 1982, pp. 1–19. Reprinted by permission of the author.

Though comparing the effectiveness of extreme approaches can be informative, both its impact and usefulness tend to be limited. It is not unusual for a given format to be dictated by resource limitations, political considerations or delivery concerns. Furthermore, television is often produced as part of a multimedia course package in response to a formula calling for x number of programs rather than in response to an instructional analysis which deems it the necessary medium to achieve a particular goal. When such is the case, a lecture format will often serve the purpose as well as or even better than a dramatic or documentary format. To paraphase an astute colleague, if one decides to sew on a button with a screwdriver it really doesn't matter whether one uses a flat-blade or a philips-head! Nevertheless, when the use of television is mandated and a given format selected, the issue becomes how to make a *good* talk show or a *good* documentary or a *good* drama. The emphasis must be on using the selected format to the best possible advantage.

In Search of Guidelines

The remainder of this article describes a study that examined two production approaches to one program form—the narrative documentary. In so doing, it sought to make explicit the implicit relationship that exists between general production philosophy and viewer response. Narrative documentaries are among the "staples" of telecourse series formats and examining their effects in the context of their design philosophies can contribute to the ongoing attempt to define criteria to guide their development.

The Treatment Programs

The University of Mid-America has developed a two-semester, college level, multimedia course in Japanese studies, each semester's TV programs produced by a different production team, under somewhat different circumstances and with different approaches to program design. As part of the first semester production cycle, the initial team produced two pilot programs of the second semester series. When a new production team was retained to produce the remainder of the second semester programs, it espoused a different production philosophy. Through a different philosophy and process, different product characteristics emerged, though within the constraints of the general "look" of the first semester series: the on-camera talent was retained; there was voice-over narration, albeit using different, but similar talent, the visuals were primarily extant film footage and stills; the program form was once again the narrative documentary. The major immediately apparent difference in program style was the replacement of the studio set with location settings for the on-camera host segments.

The second semester team chose to produce its own version of the two pilot programs, making them more consistent with the other second semester programs. As a result there were two treatments of two program topics available for study. Though the two treatments of each program are not totally comparable in their content coverage, they contain from 70 to 75% of the same content points.

The Program Design: Philosophy and Approach

The differences noted above as well as other less obvious differences appear to stem from different approaches to program design and production. For descriptive purposes these approaches might be called audio-driven (Tmt A) and video-driven (Tmt V) and are summarized on the following page.

Audio-Driven. This approach to design involved the development of tightly written scripts to which visuals were later fit. Prior to examining any visuals, a writer drafted pilot scripts from extensive content outlines. When these proved unacceptable to the writer-producer, he wrote the scripts himself. He had seen the potential visuals by this time but he wrote from the previously detailed content outlines. The content specialist reviewed the scripts repeatedly until he was completely satisfied with the wording. To the extent possible, this was kept intact, with only minor changes made after the final visuals were selected. The scripts were not revised to fit the narrative to the significant visuals; rather, visuals were generally chosen to fit the scripts as best as possible. The scripts were in nearly final form prior to their transfer to the editing room.

Video-driven. In this approach, an instructional designer examined and digested the detailed content outlines supplied by the content consultants. The designer drew from the resident content specialist the primary content points and composed a two-page outline, delineating major content sections. Next, he wrote the introductions and connecting on-camera sequences. Due to scheduling demands, the production crew filmed these host sequences on-location in Japan along with additional substantive visual material prior to any further program definition. Upon return, the designer and producer fleshed out a ten-page narrative outline for each program as they assembled a rough cut from both original and stock visuals: the process was an interactive one occurring in large part in the editing room. Following a review for content accuracy, a professional documentary writer converted the outline to a full-length final script to coincide with the visual presentation.

The Study: Design and Procedures

Thirty-six adults from the Lincoln, Nebraska area participated in the two-session study. Most were part of a 300-person pool of community volunteers who ordinarily participate on call (for a small honorarium) in formative evaluations of developing products. Others responded to notices posted on University of Nebraska bulletin boards. The requirements for participation were: 1) interest in the topic area, 2) no previous viewing of the programs and 3) an intention to attend both sessions.

Table 1 shows the study's simple cross-over or Latin Square design with repeated measures. Two groups of viewers saw one program from each treatment set one week and one from the other treatment set the following week. The order of presentation of the treatments was reversed for the two groups. Since the two programs were logically sequential in terms of content, the first in each was shown the first week and the second the next.

Viewers were stratified by sex and randomly assigned to the two groups. The sessions each week were conducted simultaneously by two evaluators who read the same introductory statement to their groups. The statement alerted the participants to the agenda for the session which included viewing the program and "answering questions" about it. Following program viewing, the participants responded to a 54-item affective test in a Semantic Differential format and to a cognitive learning test composed of both essay and multiple choice items. They also completed a demographic form which asked for information concerning their knowledge of Japanese history and culture, their attitude toward history as a discipline and the usual personal background information.

Table 1
The Design of the Study

		Group 1	Group 2
Program (Week)	1	Tmt A (N=17)	Tmt V (N=17)
	2	Tmt V (N=19)	Tmt A (N=17)*

*Two people in Group 2 did not return the second week.

The Cognitive Test

In the Japan series the television programs were planned to carry a good deal of substance. In many multi-media courses, however, the print component carries most of the content with the television component playing a supporting and reinforcing role. The television component, nevertheless, is expected to be able to stand alone in conveying its major theme or learning objective.

For the purposes of this study, the cognitive test covered a wide range of content. Some items were drawn from extant test material but the majority of the items were derived from a content analysis of the programs. Two psychometrically knowledgeable evaluators, one of whom had worked on the development of the course, wrote the items. Table 2 shows the composition of the cognitive tests for each program.

In every case, the general essay asked for the objective or main point of the program; for each program it accounted for four points and was the same across treatments. Topic essays tested subtopic content, as did multiple choice items. For Program 1, 17 questions were common to both treatments with the remaining questions testing idiosyncratic content in each version of the program. For Program 2, 20 questions were common to both versions.

Results

This section contains a discussion of both statistical and purely descriptive exploratory analyses. Comparisons were made between corresponding programs viewed by the two different groups and between sequential programs viewed by the same group a week apart. (The demographic data supported the comparability of the two groups.)

The Affective Domain

Table 3 shows a sample item format and lists the 54 adjective pairs as they were clustered logically for analysis. Though 40 of the items are clearly evaluative in nature, the remaining 14, for example, educational/entertaining and known/unknown, are primarily descriptive and were assigned scale values according to a consistent though idiosyncratic scheme. The 54 adjective pairs were randomly ordered on the test as was the placement of each adjective to the left or right. The numbers in parentheses indicate the scale values of the adjectives.

Table 2

Composition of Cognitive Tests

	Program 1		Program 2	
	Tmt A	Tmt V	Tmt A	Tmt V
Multiple Choice	12	10	13	13
Topic Essay	11	12	16	16
General Essay	1	1	1	1

Table 3

Affective Test

SAMPLE ITEM: concise __ __ __ __ __ __ __ wordy

Cluster A: Clarity/Organization

easy(1)/difficult(7)
flowing(7)/jerky(1)
abstract(1)/concrete(7)
ambiguous(1)/distinct(7)
organized(7)/disorganized(1)
strong(7)/weak(1)
obvious(7)/vague(1)
harmonious(7)/discordant(1)
intelligent(7)/stupid(1)
orderly(7)/chaotic(1)
clear(7)/confusing(1)
jumbled(1)/ordered(7)
careful(7)/careless(1)
clear(7)/hazy(1)

Cluster B: Content/Substance

deep(7)/shallow(1)
useless(1)/useful(7)
worthless(1)/valuable(7)
full(7)/empty(1)
uninformative(1)/informative(7)
substantive(7)/superficial(1)
simple(1)/complex(7)
unfamiliar(7)/familiar(1)
educational(7)/entertaining(1)
meaningless(1)/meaningful(7)
unknown(7)/known(1)

Cluster C: Life Activity

pictorial(7)/narrative(1)
colorless(1)/colorful(7)
verbal(1)/visual(7)
concise(7)/wordy(1)
active(7)/inactive(1)
sharp(7)/blunt(1)
stale(1)/fresh(7)
exciting(7)/dull(1)
same(1)/varied(7)
rigid(1)/flexible(7)
fast(7)/slow(1)
long(1)/short(7)
new(7)/old(1)
tense(1)/relaxed(7)
light(7)/dark(1)
repetitious(1)/nonrepetitious(7)
contrived(1)/natural(7)
traditional(1)/innovative(7)
ordinary(1)/imaginative(7)

Cluster D: Appeal

appropriate(7)/inappropriate(1)
unbelievable(1)/believable(7)
good(7)/bad(1)
low quality(1)/high quality(7)
amateurish(1)/professional(7)
unrealistic(1)/realistic(7)
absorbing(7)/boring(1)
inadequate(1)/adequate(7)
subtle(7)/obvious(1)
appealing(7)/unappealing(1)

Table 4

Cluster C Mean Scores by Group and Week

	Group 1	Group 2
Week 1	96.2 (Tmt A)	96.8 (Tmt V)
Week 2	94.5 (Tmt V)	86.1 (Tmt A)

Table 5

Items showing a notable mean scale difference between treatments of Program 2

Cluster	Adjective Pair	Tmt A	Tmt V
A	ambiguous(1)/distinct(7)	5.24	5.82
A	organized(7)/disorganized(1)	5.24	6.06
A	confusing(1)/clear(7)	5.29	5.94
B	simple(1)/complex(7)	3.71	3.12
B	meaningless(1)/meaningful(7)	5.58	6.18
B	known(1)/unknown(7)	3.71	2.94
B	useful(7)/useless(1)	5.41	6.12
C	stale(1)/fresh(7)	5.00	6.12
C	light(7)/dark(1)	3.71	5.00
C	repetitious(1)/nonrepetitious(7)	4.29	4.94
C	inactive(1)/active(7)	4.76	5.88
C	dull(1)/exciting(7)	4.47	5.41
C	concise(7)/wordy(1)	4.59	5.18
C	slow(1)/fast(7)	4.47	5.18
C	verbal(1)/visual(7)	3.29	4.65
C	traditional(1)/innovative(7)	4.12	3.53
C	long(1)/short(7)	3.71	4.12
C	colorless(1)/colorful(7)	5.06	5.71
C	blunt(1)/sharp(7)	4.77	5.29
D	obvious(1)/subtle(7)	2.82	3.89
D	boring(1)/absorbing(7)	4.88	5.65

A two-way (Group by Test Score) repeated measures analysis of variance indicated no statistically significant difference between the total score means for the two treatments. Nor did additional analyses (Group by Cluster) show any statistically significant differences between the treatments on Clusters A, B, or D. For Cluster C, Life/Activity, however, the analysis revealed a difference at p=.07 in favor of Tmt V (F=3.38, df=1,32; p. .07). Table 4 displays the group means on Cluster C items.

Descriptively, there were only 11 items on which there was a difference of more than .5 of a scale point between the treatments for Program 1. Five of these were items in Cluster C and favored the video treatment. In week 2, there were 21 such items, 12 of which were in Cluster C. All but one of these favored Treatment V. Table 5 displays the items with a .5 or greater mean difference between treatments for Program 2.

Table 6

Number Favoring Each Treatment in Terms of Appeal

	Preferred Treatment		
Group	Tmt A		Tmt V
1	6	→	11
2	2	←	14

Comparing across weeks within groups, though the means and individual item scores of Group 1 (Tmt A, then Tmt V) changed only slightly from Week 1 to Week 2, the total score mean of Group 2 (Tmt V, then Tmt A) decreased by over 10 points from Week 1 to Week 2. Within Group 2, Tmt V scored higher by at least .5 of a scale point on 23 items (and at least somewhat higher on 39). Twelve of the 23 items were in Cluster C.

Additional data about response to the two treatments within groups was provided by a direct assessment question about the appeal of the programs. In the second week, at the end of the affective questionnaire, viewers were asked: "Which program did you enjoy more, last week's or this week's?" Table 6 shows the results. (The arrows indicate the order of viewing the treatments for each group.)

Three quarters of the viewers said they enjoyed Tmt V more than Tmt A. The results for Group 2 parallel those from the affective scales. Within Group 1 there is an expressed preference for Tmt V that is not reflected in the results of the affective test.

The Cognitive Domain

Because of the differing numbers of questions and points on the tests for the four programs (from 50 to 59), per cent of points earned was the basis for comparison. Figure 1 displays a graph of the results for each group of subjects, by week, on the total test and on each subscale.

A repeated measures (Week 1 to Week 2) analysis of variance of the total scores revealed a significant interaction between groups and programs (F=11.09, df=1,32; p. .01). As can be seen in Figure 1, repeated measure ANOVA with two levels of group and three subscale levels yielded a significant three way interaction effect (F=6.43, df=2,64; p. .01). That is, though as expected there was no statistically significant difference between the overall performance of Groups 1 and 2, their performance did vary both by week (program) and by test question type. By inference, we can attribute some of this difference to program treatment.

In Week 1 (Program 1), the Tmt V group performed at least somewhat better than the Tmt A group on all three question types. In Week 2, there are two noticeable differences: 1) a significant advantage for Tmt V on the general essay (program objective) question and 2) a slight advantage for Tmt A on topic essays. That topic essays comprised approximately 70% of the point total for the test, however, accounts for the statistically nonsignificant difference in overall test scores.

Within groups, there is a pronounced interaction effect favoring Tmt V across weeks on the general essay and lesser interaction effects favoring Tmt V on multiple choice and total test scores.

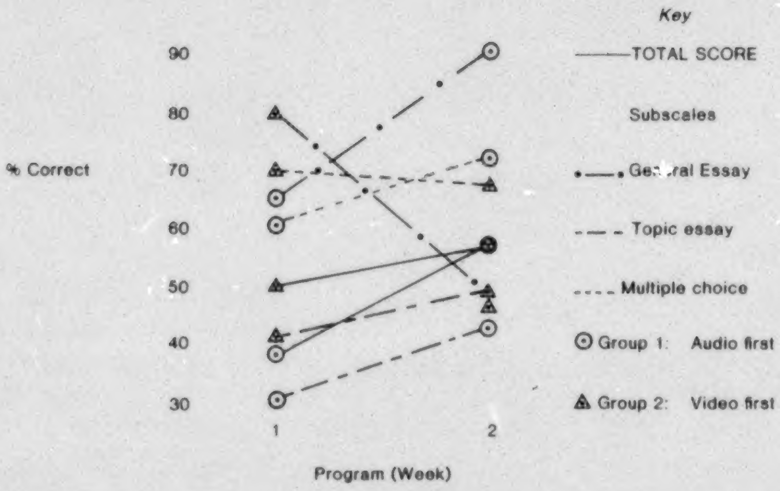

Figure 1. Cognitive test results.

At the end of the second week's affective test respondents answered the question: "From which program do you feel you learned more, last week's or this week's?" Table 7 displays the results. (The arrows indicate order of viewing the treatments for each group.)

In this case, self-report is an uneven reflection of actual test performance. Group 1's self-report does not reflect the fact that it did better on all subscales for the Tmt V program (Program 2) and Group 2 appears to have been influenced entirely by the salience of the general essay.

A Brief Analysis

When all comparisons are considered, the results favor the video-driven approach to production in terms of both appeal and learning. Overall, the generally superior performance of Tmt V belies argument that heightened appeal is achieved only at the expense of teaching effectiveness.

Though Tmt V contained as many content points as did Tmt A, it contained less in-depth discussion of subtopics. Viewers of the Tmt V version of Program 2, for example, lost out on a 6-point topic essay to which Tmt V devoted less than a minute of program time to nearly four minutes in Tmt A. This accounts in part for the superior performance of Tmt A on topic essays in Week 2. But Tmt A viewers' performance on the objective question suffered.

In all of these programs, on the average, students grasped and retained for testing only about half of the information conveyed. Therefore, what should be apparent is that the transmission of large quantities of information is not the forte of broadcast television. If the major point of the program is important, it is best to treat subtopics and lesser points peripherally.

With reference to the appeal measures, it appears that Week 1 ratings may reflect absolute judgments while Week 2 ratings reflect relative judgments, made using the Week 1 program as a standard. In Week 1, with no standard against which to compare, viewers in each group rated the two treatments similarly on the scale items. Neither program violated expectations generally held for an educational narrative documentary. It may be, however, that for Week 1 viewers of

Table 7

Number Favoring Each Treatment in Terms of Perceived Learning

	Preferred Treatment		
Group	**Tmt A**		**Tmt V**
1	7	⟶	8
2	2	⟵	15

Tmt V, the first program established certain expectations that were disappointed by Tmt A in Week 2. For the Week 1 viewers of Tmt A, Tmt V a week later was just another educational television program. Though as a group their test score total was 12 percentage points higher than in Week 1, their affective scale ratings showed no difference. The fact that two thirds of the group reported preferring Tmt V, however, does indicate a conscious relative judgment in its favor.

One might hypothesize alternatively that there were simply fewer qualitative differences between the two treatments of Program 1 and that, in general, Program 1 was a more engaging program than Program 2. This fact may have neutralized to some extent Tmt V's relative superiority for the Group 1 viewers while emphasizing it for Group 2.

Discussion

Few television writers and producers (including the producer of Tmt A) would disagree with O'Bryan (1981) that: "Good television writers work from the visual to the audio. Poor writers put pictures to words." (p. 145).

In fact, when interviewed, the Tmt A producer spoke of striving for "visual primacy" while admitting that unfortunately sometimes only "visual adequacy" is achieved while the "narrative carries the freight." Why does this occur? Again, quoting O'Bryan's deceptively elementary looking publication (1981):

> In many agencies [content goals] become the bible of the project team, and a treatment that does not pay homage to them will cause serious controversy. Sometimes, however, the instructional component is allowed to overwhelm the script, with sad results for the program's final quality. (p. 134)

There is no indication that "sad results" befell Tmt A. However, given the evidence of its somewhat lesser effectiveness, particularly on Cluster C of the affective test and on the general essay, a final probing look at the productions and the circumstances surrounding them may be helpful.

Product

In an attempt to better describe the products as well as the processes resulting in the displayed outcomes, the investigator examined the air scripts of the four programs for reading level and total number of words, fairly gross but nevertheless descriptive measures. Using the Flesch Reading Ease Formula and averaging across five samples from each script, in each case Tmt V programs contained a "fairly difficult" reading level while Tmt A programs contained a "difficult" reading level. Likewise, in each case Tmt V programs contained fewer words: 1302 fewer for Program 1 and 545 fewer for Program 2. Note that it was Program 2 that showed the smaller test score advantage for Tmt V. These measures point to two palpable differences in the treatments that are tied directly to the philosophies behind their production. Noting them is meant to be descriptive and thought provoking rather than prescriptive in any way. Yet they make sense when we consider the optimal use of television as a medium.

Process

In the production of Tmt A there was neither a professional script writer nor an instructional designer involved. (The latter is a factor only because a particularly visually literate instructional program designer was involved in the production of Tmt V. Unfortunately, instructional design credentials per se rarely assure competent design of television documentary or dramatic presentations.) During the production of Tmt A a content specialist who was the project director was resident for the duration of the project. He exercised strict control over the content presentation in the script. In addition, the producer consented to script review by the senior content advisor, a prominent author in his field, who upon reading the scripts, was intent on "elevating the level of the prose", much in line with writing for the print medium. Thus a script many times reviewed and revised for its audio content was the dominant element to which visuals were fit with as little disruption as possible. Going further back in the process, the audio-driven philosophy is exemplified in the fact that the original script writer attempted to write first draft scripts with no knowledge of available visuals. Though these scripts were jettisoned, the basic philosophy persisted.

During the production of Tmt V, the content specialist was no longer resident, returning early in the process to an academic position. The content specialist simply reviewed the 10-page detailed outline for its content accuracy prior to its being turned into a full blown script by the writer, who, as noted earlier, had the rough cut visual at hand. The noted author qua content advisor reviewed the programs by sitting in an editing room and viewing the rough cut while listening to a reading of the proposed narration, thus lessening his tendency to equate a television script with a written essay. Minor adjustments were made as necessary.

A Closing Thought

Neither of these approaches was perfect and each in its own way was dictated to some extent by exigencies of time and financial resources. In both cases production crews worked seven-day weeks well into the night and in both cases they were expected to turn out an "Adams Chronicles" for one sixth the price. The struggles between content values and production values, the hoped for and the possible are characteristic of the production of course related video programming. Variations in creative talent, resources, personality mixes among team members, subject matter, audience characteristics and the nature of the goals to be achieved, to mention only some of the crucial variables, will continue to obviate fool-proof prescriptions for program production. However, this study and its results are presented in the hope of stimulating further analysis of the implicit perspectives and philosophies of production personnel and agencies that dictate processes, product characteristics and ultimately, through them, outcomes.

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Article 12

"Educational Broadcasting: Two Lessons from the Open University"

by
Duncan H. Brown

The Open University was set up to provide an opportunity of higher education for adults who were unable to go to university when they left school. Although students must normally be at least 21 years old, and resident in the United Kingdom, the University demands no other entry qualifications. In 1979, its tenth anniversary year, the University has over 75,000 students and has already awarded over 30,000 degrees.

The Open University's Teaching System

Students, who are mostly in full-time employment, study at home and select courses from the list of over 100 currently offered by the six faculties—Arts, Mathematics, Science, Social Sciences, Technology, and Educational Studies. For an ordinary BA degree students must obtain 6 credits but for a BA (Honours) they need 8 credits. A credit is awarded for the successful completion of a full credit course lasting 32 weeks from January to November. During this time—although there are obviously wide variations—students can expect to have to devote 12–15 hours each week to Open University study.

Students study using a combination of specially written correspondence texts, set books, and specially produced radio and television programmes. Throughout the course optional face to face tuition is available at one of the 260 local study centres spread around the country, but a student's main source of personal tuition is by correspondence.

To overcome the problem of teaching science and technology with students working at home many of the courses in these disciplines also send students a home experiment kit. These kits can contain quite sophisticated equipment but there are obviously limits to what can be sent to students. This is one of the reasons why some courses have a compulsory, residential summer school lasting one week. Summer schools are held on the campuses of conventional universities when the students of those host institutions have left for their summer vacations. Each of the five introductory courses and some higher level courses (particularly those in science and technology) include a summer school. All Open University students will therefore experience at least one week of full-time study.

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At the end of each course every student must take a three-hour written examination at a specially designated examination centre. As with other British universities these examinations are scrutinized by independent external examiners to ensure that academic standards are maintained. Finally the student's grades for assignments submitted throughout the year are combined with the exam result to determine whether the student will be given a credit.

The Open University's headquarters are at Walton Hall, 50 miles north of London in the new city of Milton Keynes. Here new courses are designed by course teams which include central academic staff, BBC producers, educational technologists, full-time academic staff from the regions and a back-up team of graphic artists, editors, photographers, librarians, etc.

The full-time regional academic staff mentioned as forming part of the course teams are also the core of a regional network which covers the whole of the United Kingdom. Thirteen regional offices are responsible for the 260 study centres where students come into contact with the part-time tutoring and counselling staff. The University employs over 5,500 part-time staff who are drawn mainly from other higher education institutions throughout the country.

Another centre at present away from the headquarters at Walton Hall is the BBC-Open University Production Department at Alexandra Palace in North London. Although a new production centre is currently under construction at Walton Hall the Open University's television and radio programmes have been produced—perhaps rather appropriately—at Alexandra Palace, the building from which the world's first public television programmes were transmitted in the 1930's.

Broadcasting at the Open University

A formal agreement between the Open University and the British Broadcasting Corporation (BBC) provides for the production of up to 300 new television, and 300 new radio programmes each year. This agreement also includes transmission time for the growing number of Open University programmes. In 1979 the BBC transmitted each week, just over 35 hours of television on its two national networks and approximately 26 hours of radio on two of the BBC's national FM radio networks.

The Open University's commitment to broadcasting is therefore considerable. Of the total Open University budget in 1979—approximately 64 million dollars—almost 12½ million dollars were paid to the BBC for producing and transmitting the television and radio programmes.

This level of production means that just over 300 BBC personnel work in the Open University Productions Department of whom 60 are specially trained producers. As these producers are involved in all stages of the course production process there is clearly a need for them to combine both academic and media expertise. Many were therefore recruited from the academic world and given training in production techniques by the BBC.

As well as the colour television studio and a radio studio at Alexandra Palace, the Department also has its own colour outside broadcast unit which includes videotape facilities. By adding many of the support services, such as film cutting rooms, a video rostrum area, graphic design facilities, etc., the department has become a self-contained production centre—though it still has the advantage of being able to call on central BBC departments for film crews, source material, and technical expertise.

Despite this major commitment it must be remembered that broadcasting only plays a part—though sometimes a very important one—in a complex multi-media distance learning system. Even on the introductory courses, which are given the maximum allocation of radio and television

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programmes, students receive only one 25 minute television programme and one 20 minute radio programme per week. On more advanced courses students may only receive one radio and one television programme a month. But despite the comparatively small proportion of a student's time devoted to broadcasting it is an important and successful element of the Open University's teaching system.

The Hardware Is Not Enough

In contrast to the Open University's experience of using broadcasting as part of an educational system a review of the available literature soon shows that when broadcasting has been used elsewhere the results have frequently not matched the expectations. In the third world, broadcasting was often held up as a panacea for their development problems. In Europe and North America disappointment followed many of the attempts to use broadcasting either as part of compensatory education programmes in the schools, or as a way of handling the explosion in student numbers in higher education.

Since the technical standard of the hardware available to many of these less successful projects was comparable with that used by BBC-Open University Productions; and since many of these projects also used experienced professional broadcasters as programme producers it might be useful to analyse the *context* in which Open University broadcasting has proved successful. Perhaps in this area some clue can be found to explain why similar hardware can be less successful in one setting than another.

To analyse the ways in which broadcasting is used at the Open University the work of Katz and Wedell seems helpful (1). They have suggested that before the use of educational broadcasting in the third world can be analysed it is first necessary to make a distinction between two types of educational broadcasting. Although the Open University uses broadcasting in a more developed country than those which Katz and Wedell studied the distinction still seems relevant.

Katz and Wedell called these two types "Intensive" and "Extensive" and suggest that they should be seen as the two extremes of a continuum. The *extensive* form of educational broadcasting includes ". . . all types of programming that are intended in one way or another to encourage greater understanding among sections of the general audience" (2). These programmes aim at informal education, usually of adults at home, and have no multi-media support, demanding little or no preparation by the viewer. In contrast the *intensive* use of educational broadcasting is aimed at the formal part of the education system. Specialised programmes are produced for particular target groups of students and multi-media support is usually provided.

If these two types are viewed as the extremes of a continuum along which all educational broadcasting projects could be placed it is obvious that the Open University would come very close to the intensive end of the continuum. Programmes are very specialised and carefully designed as part of a multi-media learning package which can result in a formal qualification for the students.

The First Lesson

From this recognition of the type of educational broadcasting used by the Open University an important lesson can be drawn. Katz and Wedell argue that these intensive uses are less likely to succeed as they can only function with a ". . . highly developed co-ordinating structure working with considerable resources" (3). They quote Richmond Postgate who gives a clear example of the difficulties in running an intensive educational broadcasting system in a developing country.

> "Failures are very common at interfaces. Most new schemes have many interfaces. For instance, a successful school broadcasting radio service involves a producer, teacher, inspector, headmaster, a maintenance system, a local supplier of batteries, a reasonable engineering system to produce a signal, a producer of acceptable support material, a distribution system, an effective feedback system, a personnel training system, and an organisation that sustains, harmonises and finances all these items."(4)

At the beginning of this paper, within the constraints of time, some idea was given of the complexity of the Open University system which surrounds this successful use of broadcasting. Had space allowed, a more complete description of the University would have emphasised even more clearly the tremendous number of interrelated support systems. And yet even this complex structure can only function because within the United Kingdom there are other functioning systems which the Open University can use.

To give just two examples. The University uses the national postal service which—although everyone complains about it—is rapid and reliable enough to allow the University to mail about 20,000 course packages to students every week. This adds up to an average weekly weight of 35 tons. The postal system is also reliable enough for students to mail their assignments to their correspondence tutors and in return receive comments and advice.

The University also draws on the large pool of qualified staff in other higher education institutions to act as part-time tutors and counsellors. If Britain did not have this large higher education system the Open University, as presently constituted, could not function.

Although many other examples could be given the lesson is clear. Even if the BBC-Open University Production Department, together with a national transmission network, were given to another country this would not be a guarantee that this new country would be able to use intensive educational broadcasting successfully as part of a distance learning system. Unless the support systems either existed within that country—or could be rapidly established—the expectations would probably not be matched by the results.

The Need for a New Emphasis on the User

Up to this point the user has received relatively little attention in this paper. But sadly this is often the situation when attempts are made to introduce educational broadcasting. Too often the emphasis is on the hardware with little thought for the demands the new broadcasting will make on the individuals for whom it is intended.

Recently there has been an increasing awareness that perhaps people are not as easy to change as we once thought. They find it difficult to 'unlearn' deep-seated roles and behaviours and to adopt the new ones required by an innovation. The implication of viewing innovation in this way is that instead of seeing it as a series of events, and concentrating on the stages by which the hardware is installed, the emphasis should really be on the user. The questions which should be asked are those which attempt to discover what changes the innovation will demand of the users and how they can be helped to make those required changes (5).

But the emphasis on the hardware still goes on. To take only one example. In the Indian Satellite Instructional Television Experiment (SITE), conducted during 1975–76, 82 percent of costs were for hardware—earth stations, studios, television sets, etc. Only 9 percent of total costs were spent on software production—the programmes. The management and coordination of the project by the Space Agency accounted for a further 6 percent which means that only 3 percent was spent on social research and evaluation (6).

It would, however, be wrong to give the impression that this lack of forethought in the introduction of new technologies for education is restricted to the developing world. An almost 'classic' example of the problems which can result has been given by John Lee in his book, *Test Pattern* (7). This analyses the attempts at Scarborough College—part of the University of Toronto, in Canada—to use televised lectures as a replacement for large, year lectures with undergraduate students. This was a response to the projected explosion in student numbers in the second half of the 1960's with the resulting shortage of qualified and experienced teachers.

In the introduction to his study Lee summarises very well the way in which the problems individuals might face were given little emphasis.

> "The decision to go all-out for television at Scarborough reflected a general tendency among North American governments to believe that 'crash programmes' could solve urgent social problems. Much less attention was paid to the slower process by which human values and attitudes are changed. Generous budgets and emergency plans might raise new buildings almost overnight and equip them with new technologies, but the attitudes of students and professors could not be altered so fast or so arbitrarily."(8)

As in many other instances of educational innovation the demands made on the users were not given sufficient thought. At Scarborough College, although university teachers were going to have to use television as a *replacement* for the conventional year lectures it was found that in some cases, when new staff had been appointed the question of using television had not been raised: in fact some appointees were apparently not even told that the television facilities existed(9). The students fared no better. Because the existing lecture timetable was built around fifty-minute lectures separated by ten-minute periods for class changes the use of television was structured to fit this format (10). No one appears to have questioned the assumption that because students seemed reasonably happy with two or three, fifty-minute face-to-face lectures a day they would find two or three, fifty-minute televised lectures equally acceptable.

In Scarborough College the lecturers and students had to develop new skills. The former to teach through television, the latter to use television as a learning resource. The roles for both lecturer and student had been radically altered but there is little evidence of opportunities being given for either group to develop the new skills, or practice these new roles.

The Second Lesson

At this point I want to take a second example from the Open University's experience of using broadcasting. It illustrates very clearly that even with sophisticated hardware, skilled producers, and a massive support system it is still possible that the intended outcome of the programmes may not be achieved if the users do not possess the skills required to make use of the learning resource being offered to them.

As part of the Open University's commitment to progressively developing its system of distance education the University has established an Institute of Educational Technology. This Institute was set up to conduct research into the Open University's teaching system and to feed back the results of that research into the production of new courses. There is a staff of about 70 and in 1979 its budget was approximately 1,400,000 dollars—though this was supplemented by funds from external sources.

I am a member of a research group which forms part of that Institute and has been given the task of researching into the audio-visual component of Open University courses. One element of the work of this research group since 1974 has been a number of studies which looked at individual television programmes in great detail. Two of my colleagues, Tony Bates and Margaret Gallagher had conducted a number of these studies when it became clear that one type of programming was resulting in a recurring pattern of problems among students (11).

By 1976 an increasing number of courses were planning to use television to present "case-studies" to their students. These programmes use what could probably best be described as a documentary format to present student with "real-world" examples which they can then analyse using the theories, concepts, and criteria they have met elsewhere in their courses. Although this type of programming covers a wide spectrum, and some would question the validity of the terminology, 'case-study' and 'documentary' it is clearly a particularly valuable use of the television resource which the Open University is most fortunate to possess. Its value lies in the fact that it presents students with the opportunity to discover whether they can *use* the theories and concepts they have learned to gain a better understanding of the world about them. In other words these programmes provide an opportunity for students to develop the higher order learning skills such as analysis, synthesis, and evaluation.

The evaluations of these programmes showed that a significant proportion of the students were unable to use these case-study programmes in the ways in which the producers had intended. One example will serve to illustrate these problems.

An advanced level course in the Social Sciences looks at the structural basis of inequalities and their social and political implications. In the first part of this course a television programme uses the role of women in the home and at work to examine conventional assumptions about inequality; to distinguish between inequality and differences; to establish the significance of class in social relationships; and to identify the role of ideology in perpetuating these relationships.

The programme was supported by many pages of printed materials which related to the concepts with which the material in the programme was linked. In addition the objectives of the programme were clearly stated. And yet, despite the care with which this programme had been integrated with the other components of the course, a majority of the students were unable to analyse the material as had been intended.

Here it must be emphasised that this problem was most certainly *not* the result of shortcomings in either the technical quality of the programme, or of the production skills which had gone into it. Indeed the Open University is fortunate that its link with the BBC ensures both a high technical and professional standard. And yet the problem *was* there. Many of the students could not make full use of this learning resource.

Here the new use of the technology—broadcast television as part of a distance learning, university level course—was demanding from students a set of skills which many did not possess. In addition the familiarity of the medium, and the documentary style of presentation led students to misinterpret the response which was required from them.

With the programme on inequality the students identified very strongly with different individuals who appeared in the programme. In normal network television a producer would be extremely pleased with this result, however, in this case the objective of the programme had been to give students an example which allowed them to apply the concepts of ideology, class, and social change.

Partly as a result of findings such as these several approaches are being tried to help students develop the skills needed to make full use of case-study type programmes. A package of materials is being developed to help new students identify the different types of television programme produced by the Open University, and to realise that each type requires a different response. Some individual case study programmes have already been produced with much clearer "signposting" built into the programme to help students identify the most important aspects. But a more long-term solution is also being planned. The new version of the introductory course in Social Sciences will structure its use of television to help students develop these skills. Early programmes will include documentary material, but students will be given considerable help with the analysis of that material. As the course progresses the programmes will give students less and less help until, by the end of the course, most students should be able to cope with case study programmes on their own.

Conclusion

Although this paper has concentrated on two problems in the use of educational broadcasting these should only be taken as cautionary notes. The danger is that if educational broadcasting continues to be oversold there will be a backlash. Educational broadcasting is a valuable resource but a continued emphasis on the hardware, together with a failure to recognise the problems which users may face will mean that in many more cases the results will not match the expectations.

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Article 13

"Educational Television Is Not Educating"

by
Richard W. Smith

In the rather small universe that is instructional television, a few people are beginning to think the unthinkable. The terrible thought that is nibbling around the edges of the nonprofit educational television systems is that television does not educate.

The scope of this whispered heresy can be gauged only with some understanding of the origins of public television. The system began some 25 years ago when educators, recalling their failure to reserve radio frequencies for instructional use, lobbied a largely disinterested Congress into setting aside at least one TV channel in each major market for "noncommercial, educational" use.

At the same time, prompted by a teacher shortage at both the grade school and the college levels, closed-circuit instructional TV went into the classroom in a big way. Suddenly, college freshmen were sitting in overcrowded lecture halls watching their professor lecture on a flickering 21-inch screen. School boards became the financial backbone of many struggling new educational TV stations, paying for broadcast time and for the production of courses in third-grade mathematics and fifth-grade social studies. High school teachers rose at the crack of dawn to watch something called "Sunrise Semester" on a public-spirited CBS to enable them to cope with the New Physics in the age of Sputnik. The Ford Foundation and later the Department of Health, Education, and Welfare bought equipment for the stations engaged in educational projects.

Of course there were studies. Academe abounds in studies. And, from the earliest work of Wilbur Schramm to the most recent work of the Dallas Community College District, almost without exception the learned papers showed that students could and would learn from television. A large faction within the American educational community is regularly impressed with innovative techniques. And if these techniques are supplemented by complicated technology, academic enthusiasm knows no bounds. In the last two decades, language laboratories, teaching machines, computer-assisted learning, and educational TV have all been enthusiastically embraced by professional educators. But today, foreign language instruction has virtually disappeared from the curriculum, and the language labs gather dust; the teaching machine has gone the way of the window stick; and computer-assisted instruction is so expensive that it seems most unlikely to become a staple in these days of shrinking school budgets.

Instructional TV remains, but in a marginal form. In city after city, school systems have cut back or eliminated their purchase of instructional services from the local public television operation. Few public television systems are still in the business of preparing instructional series

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From Richard W. Smith, "Educational Television Is Not Educating," *Change*, vol. 10, no. 11, pp. 62–63, 78, December/January 1978/79. Used with permission of Council on Learning.

for grade schoolers; and publishers, who once saw classroom TV as an entirely new commercial market, have largely withdrawn from the business. All of this occurs at the same time that the live classroom teacher is under the most severe criticism in the last 50 years.

At the college level, a similar reduction can be seen. "Sunrise Semester" marches stoically on as a ward of the CBS public affairs commitment, but its numbers of enrolled students are woefully small. A five-year, multimillion-dollar federal experiment at the University of Nebraska's public television station designed to create a broadcast-based "University of Mid-America" (UMA) is hardly a smashing success and is kept alive only by frequent vigorous publicity efforts. But even its own press releases claim less then 1,000 enrollments per semester for several of the courses in its multistate program. The big universities, like Ohio State, which once herded their first-year students into darkened lecture halls to be talked at by a box have largely given up the practice. The Ford Foundation has stopped buying equipment and funding educational TV experiments, and the public television stations have not only shed the educational TV name but now go directly to the public with appeals for funds. Opera, drama, and classical music are now the staples of public television. Educational projects will no longer pay for themselves.

Instructional TV apologists are maintaining that the new technology never took hold because of sabotage by teachers' unions in the grade schools and the intellectual snobbery of professors in the colleges. This is too simplistic an answer. In the 1950s, educational TV was given a fair run during the teacher shortage; and while it is true that some teachers and professors feared TV as a potential job threat, it is too harsh to suggest that the teaching profession would deliberately sabotage a movement which promised great gains for students.

The sad fact of the matter is that television has not delivered mass educational gains for large numbers of students. "Sesame Street," public television's showcase children's series, reaches only 5 percent of the television audience during the so-called "children's hour." And while it is effective in teaching preschoolers to count and to say the alphabet, it is most effective with a narrow, middle-class, largely suburban audience of youngsters whose ambitious parents see to it that they watch Big Bird and Oscar the Grouch.

"Sesame Street" has actually been a failure with the audience it set out to help most. The underprivileged, inner-city youngsters stayed away from "Sesame Street" in droves. The producers of the show have added more black and Chicano characters, introduced street slang, and searched diligently for topics of street relevance—even establishing storefront centers in major cities with people banging on ghetto doors to explain the worth of the program to parents. Only recently has Children's Television Workshop, the producer of "Sesame Street," been able to claim significant penetration into minority neighborhoods.

The same situation prevails at the other end of the educational spectrum. The Open University is a British attempt to spread university-level instruction to the masses. It utilizes both TV and radio plus extensive printed material and local storefront study centers to provide a surprisingly high level of academic instruction to 60,000 residents of the United Kingdom. A Labor government creation, the Open University was to provide dockers, miners, and lorry drivers with a chance at Oxbridge learning. But when the applications came in they were from schoolteachers and office managers—solid middle-class, ambitious, upwardly mobile folk. The more limited American experiments with College of the Air instruction in Maryland, in Chicago, and elsewhere indicate that while there is an audience willing to accept college instruction at home by television—and to do rather well in those same courses—they are largely middle-class, ambitious men and women with an average age over 30. (See *Change*, "The Open University: Lessons for the Future," November 1978 editorial.)

All this may boil down to the fact that television is a mass medium and learning is an act of individual initiative and some discomfort. It is not a simple matter for most people to learn. It is an act that requires willingness, motivation, and more than a little discipline. Within the classroom, peer pressure, a grading system, and the watchful eye of a teacher can provide the necessary atmosphere for learning. At home, with only a television schedule as a guide, more individual effort is required.

Marshall McLuhan, the high priest of mass media theory, claims that television appeals only to the emotional side of the brain and that TV imparts disconnected, disassociated, nonrational images to the viewer. Print appeals to the rational side of the brain and permits logical assimilation of the material in an orderly fashion. McLuhan's version of physiology may be faulty, but his theory does explain what seems to happen with students watching television. In a study of students enrolled in the Maryland College of the Air, Christopher Rhines of Essex Community College discovered that students preferred the course based on the public TV series "The Adams Chronicles" over the five other offerings that semester. The TV segments of "The Adams Chronicles" were evocative dramas designed for a general, nonstudent audience. These programs are typical of the better productions now available on public TV channels. They were backed up by considerable outside reading and self-study exercises, many of which were totally unrelated to the TV programs. Students felt they worked harder but learned more. The other programs that semester were lecture-style presentations which provided much of the total course content on the air.

Britain's Open University has discovered that it is very difficult to present substantive material in its television programs and is moving toward the development of programs that are designed simply to arouse interest and curiosity. The University of Mid-America found out, to its chagrin, that students in an accounting course using only the printed text and guides performed as well on the examinations as those who had watched all of the rather expensively produced TV segments. What this means, of course, is that "The Adams Chronicles," the Open University courses, and the UMA accounting course are really old-fashioned home study programs with only the added fillip of a TV program every week to serve as a pacer and a motivator. Television, in these cases, is not teaching, in the traditional sense of imparting information directly to the student. Rather, it is cajoling, chiding, urging the student back to his books and his serious studying.

And there is yet another factor at work. Today's young adult has watched tens of thousands of hours of television programming, most of it produced at a very high level of technical competence. Virtually all of this television entertainment has been of a very trivial nature, seldom taxing the imagination or intellect but often stirring the emotions. This is the kind of television experience, then, that the young adult has come to expect. As a result, on-campus college students in the United States have become increasingly hostile to traditional educational television instruction. In 1976, for instance, the University of Maryland produced a hard-information, freshman mathematics course on TV for its 4,000 incoming nonmath, nonscience majors, only to have it literally hooted out of existence. But the same tapes when used by older, self-selected home study students through the Maryland College of the Air produced very satisfactory results. Penn State University experienced a similar phenomenon with a short course of TV programs on nutrition. The on-campus students simply would not watch.

Perhaps the most critical problem of instructional television in the United States is that it has fallen into the hands of the professional educational establishment. Committee ridden, the educationalists attend endless meetings armed with lesson objectives, course study plans, age learning curves, and vocabulary studies. Each instructional television program thus becomes a series of compromises that sap it of vitality and result in a video version of what the average teacher usually does in the classroom. This is not surprising since most of the planning committees are made up of average teachers. Of course, television is far too expensive to be left to mediocre talents; but the educational establishment has seemed reluctant, if not actually afraid, to utilize the superior teacher who can by the force of his or her intellect and personality inspire students to want to learn.

Television's virtue is that it can excite, arouse, create an emotional climate and a sense of mission. TV did not succeed in instructing the American public in the tactical military methods of the Vietnam War, but it did teach them to hate the war. If it is to survive, then, instructional television must play to the strength of the medium. It must make learning appear both attractive and worthwhile. If it shows ancient Greece to be a fascinating civilization full of interesting and exciting men and women, students will see some purpose in reading Plato and Homer. If the excitement of discovery in a laboratory can be depicted in dramatic form, students will learn Boyle's Law and Brunilli's Principle from their texts. If it fails to exploit its strength, instructional TV will simply continue in its steady and precipitous decline.

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Section III

Case Studies

Introduction

At one time, a concern was raised that telecourses would lead to increasing uniformity in higher education and a standardization of the curriculum. A look at the many ways telecourses are offered by various schools today reveals as much diversity in the offering patterns as exists among the colleges themselves. Colleges and universities are offering telecourses at lower-division, upper-division, and graduate levels. These courses enroll extension students, vocational students, nontransfer and transfer students. Telecourses have been offered to small groups of students as well as to groups of many hundreds. Course assignments and faculty role vary widely. And, of course, the organizational patterns of acquisition, evaluation, broadcast, and funding also show great variation. Where telecourses have become a regular part of an institution's program, faculty and administrators have adapted them to serve local student needs and fit institutional resources and patterns. This diversity of implementation patterns is revealed in the selections in this section and is also apparent in other articles in this anthology as well.

The six schools and systems described in this section are not necessarily representative of categories of institutions or use. In fact, the three college systems which are best known for their use of telecourses—Dallas County Community College District, Coastline Community College, and Miami-Dade Community College—are deliberately not included here, since much has been reported on their practices in other sources. Articles describing the National University Consortium, the Appalachian Community Service Network (ACSN), and various other national distribution and broadcast arrangements are reprinted in articles in Section VII.

The six selections in this section reveal not only diversity but also resourcefulness and creativity in adaptation of telecourses to local uses. A factor common to use of television by these schools is the importance of planning and leadership, sometimes at the local level and other times at the state level. The institutions represented include: the British Columbia Institute of Technology, Burnaby, British Columbia, Canada (Article 14); the University of Alabama, Birmingham (Article 15); the Higher Education Instructional Television project in West Virginia, under the leadership of WWVU-TV (Article 16); the College of Continuing Education, Rochester Institute of Technology (Article 17); the Florida Community College Television and Radio Consortium, with leadership by the Florida State Department of Education (Article 18); California State University at Chico (Article 19).

A much more complete source of information on all the experiments and programs using television at the higher education level is a directory available from the Center for Telecommunications and Learning in Washington, D.C., *Meeting Learners' Needs through Telecommunications: A Directory of Programs* (1982).

Article 14

"An Interactive Instructional Television Project"

by
Barbara Yeoell

What Is Anik-B[1]?

Anik-B is one of a series of communications satellites owned and operated by Telesat Canada. It was launched on December 15, 1978, and it has operating frequencies in both the 4/6 and the 12/14 GHz range. The 4/6 range is generally considered to be the commercial range, and is used for the distribution of commercial telecommunications of all types, including television and telephony, across Canada. The 12/14 GHz range has been used primarily for a two-year series of nation-wide communications experiments which will continue until February 1981.

What Is the Anik-B Interactive Instructional Television (IITV) Project?

The Anik-B Project, popularly known by its abbreviated name "Anik", is part of the two-year communications experiments for which the Anik-B satellite is being used. The project was designed to explore the possibilities of using IITV to provide distance education for people living in widely scattered and sometimes inaccessible areas of British Columbia. In other words, the project was to be a long term test of whether IITV would be both educationally feasible and acceptable to the people it was designed to serve. If it were, then it would be an excellent means of making post-secondary educational opportunities as available to rural communities as they are to communities in the urban areas. In the event, the project showed that it is both feasible and acceptable.

What the Overview Discusses

In this overview we deal with the historical progress of the project and include comments on how the people involved responded to the project as a mediator of education. We also touch lightly on aspects which will be dealt with in detail in the other reports in the series. In addition, we look at the necessary limits within which the project operated as well as the things we knew we wanted to know and some we discovered along the way.

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From Barbara Yeoell, *Anik-B Interactive Instructional Television Project Overview, October 1, 1979–May 31, 1980*, pp. 1–29. Used by permission of the British Columbia Institute of Technology.

[1] Anik is an Inuit word for brother.

What, Specifically, Did We Want to Find Out?

We wanted answers to such things as: did IITV provide an effective medium for learning; what was needed in the way of administration; could several organizations co-operate successfully; was instruction in the ways of the medium necessary for the instructors; could regular classes be televised exactly as they are presented in the classroom; did the medium demand a particular kind of person as an instructor; was the equipment adequate; what would it cost to establish a permanent IITV system; what would the staffing needs be? Above all, we needed to find out whether the students found the medium acceptable. If not, why not and what could be done about it?

All of these concerns are discussed in this overview, but we shall begin with the limits, or constraints, within which the project was set up and operated.

Constraints

The Ministry of Education, Science and Technology of British Columbia wanted to demonstrate the value and the innovative nature of interactive instruction via satellite. More important, however, the Ministry wanted to assess the needs of a permanent service should it be decided to institute this at a later time. To achieve this, the Ministry asked the British Columbia Institute of Technology (BCIT) if the Institute would be willing to undertake the project. Since the Ministry itself did not have unlimited funds, the project had to be run with the funds available and on a trial basis. However, despite this, the Ministry's intention was that all demonstrable extra costs incurred by BCIT or any participating college would be covered by the Ministry. The project would be further limited by the number of colleges which could be invited to take part. This number was dictated by the number of TVRT[2] terminals that the federal Department of Communications (DOC) could provide (initially five and later six[3]). One more constraint would be the time on the satellite which the federal government could give to the project. These conditions were accepted by BCIT and the colleges who had accepted the invitation of Dr. Walter Hardwick, Deputy Minister of Education, to participate.

The initial $217,000 from the Ministry of Education covered: the purchase of some equipment; the installation of the two send/receive classrooms at BCIT; initial organizational costs; and planning and travel costs associated with the project, including a planning meeting with the participating colleges which took place on March 30, 1979.

A further $115,000 was made available to the British Columbian participants by the Ministry of Education to cover the operating costs of the project. In addition to this, BCIT and the colleges collectively matched or exceeded this latter sum. This was done by rearranging their internal priorities and having some existing members of their staffs assign time to the project. Yukon and Alberta became involved in the project through their respective Departments of Education and were financed by their own governments.

All projects of whatever kind are subject to constraints, the commonest being finances, time and human resources. This project was subject to all three, however, from these constraints much was learned. In our hurried world there is seldom enough time to do things perfectly and something workable but less than perfection is the common result. Two groups given the same task and the same constraints can achieve very different results: one will make excuses for poor quality, the other, feeling challenged, will do a far better job. The people responsible for this project were of the second variety. And things did go wrong. There were breakdowns of equipment; occasionally instructors failed to appear; the materials did not always arrive at the receiving sites on time; and sometimes there was not sufficient time for the preparation or advertising of the courses. But, by and large, all these difficulties were met with improvisation and good humour. Of course there were times when annoyance and frustration got the upper hand, but there was a general determination to keep things running smoothly both at BCIT and at the receiving sites.

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[2] Television receive with telephony receive/transmit.

[3] In May/June 1979 DOC made five LCETs (low cost earth terminals) available to the project. These were offered to the participating colleges which brought the total number of receiving sites to eleven.

In the control room at BCIT, from January 1980 on, three people were doing the work of six to ten: Robert Nason,[4] David Billman and Deanna Giles,[5] kept things going where others might have given up. The overall smooth running of the technical aspect of the project is a tribute to their knowledge and enthusiasm.

During the first term, Nason had the help of nine students in their fourth term in the Broadcast Communications Department Programme. The students worked part-time and, collectively, gave 25 hours per week to the project. Amongst these students were Billman and Giles who joined the project as full-time employees on January 22, 1980: both were straight A students.

At the receiving sites, the co-ordinators and other administrative staff were usually doing the work for the project either as a part-time occupation or on top of their usual work. Willing as people are to work under restrictive conditions, it should never be more than a sometime thing. Permanent IITV, to be entirely successful, demands sufficient time, money and human resources and a careful study of all the sophisticated and various ways in which this medium can be used. Without these, few people would be willing to work with this degree of stress for any length of time, despite its many rewards.

Why by Satellite?

Education via television is no longer a new idea, but the advent of communication via satellite has given us our most modern technological means for reaching far more widespread audiences.[6] Although several commercial or public television stations using different channels could, by co-operation, reach as wide an audience as that covered by the satellite signal, the height of a satellite above the earth makes it possible for a single transmission to reach people scattered over enormous areas.[7] This gives us two important advantages over conventional television; cheaper operating costs and the ability to reach a specific, but very widespread audience with one signal. The specificity of an audience is governed by who can receive the transmitted signal. In the case of Anik-B, the terminals tuned to receive the signal from the satellite were limited to widely separated college classrooms which students attended to take advantage of the proffered programmes. Normal television requires that the would-be recipient acquire a television set which he can tune to receive only those signals available to his area. In addition to the special receiving equipment, the satellite signal can, if need be, be fed into the cablevision system as was done in Whitehorse during the project. The third major advantage to education via satellite is the potential it offers the students to interact with each other and with the instructor. With these three major advantages, it is highly probable that distance education via satellite will become a reality.

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[4] Robert Nason, Technical and Facilities Co-ordinator

[5] David Billman and Deanna Giles, full-time technical producers seconded from the Broadcast Communications Department of BCIT.

[6] This statement is not intended to disregard Telidon. However, since the software for the computer tie-in to satellite communication is not yet available for education it cannot properly be discussed here.

[7] The western spot beam covers British Columbia and 90% of Alberta.

Canada is foremost in the field of domestic satellite technology and this Canadian experiment was also first in the field of interactive education by satellite for term-length undergraduate programmes.

The idea for British Columbia's pilot project in IITV came originally from the federal government some five years ago. At that time, Canada and the USA formed a partnership for the production and launching of the Communications Technology Satellite Hermes. Hermes was the forerunner of Anik-B and British Columbia's first venture into distance education by satellite. BCIT was one of the originators of the Hermes programmes televised through the facilities of the Provincial Educational Media Centre (PEMC). The experience gained at that time proved a useful base for the Anik-B project.

Although Anik-B was launched in December 1978, and DOC allocated satellite time in February 1979, this time was not to be available to the IITV project until later in the year on October 1. It was during the eight months between these two dates that the questions of what? where? who? and how? were thrashed out.

The initial answers to these questions were that regular classroom lectures would be televised live from the newly modified BCIT classroom studios to chosen receiving sites around the province: with this, the Anik-B Interactive Instructional Television Project was born.

The initial satellite time made available to the project was from October 1, 1979 to May 31, 1980 (18 hours per week). The project was to have met, and indeed did meet, its objectives within the time stated and it is this period which is reviewed here.

Installation of the Equipment

By October 1, 1979, the necessary equipment for transmitting from BCIT and receiving at the receiving sites had been supplied and installed by DOC. There were two types of receive terminal: although both types could receive video and audio signals, only one was capable of interacting directly with the BCIT classrooms by telephony audio (TVRT). The other, a low cost earth terminal (LCET) did not have this capability and audio response could only be made by dialing a land line number which was patched into the system in the BCIT control room by means of a modified speaker telephone.

Five fully interactive sites were chosen by Dr. W. Hardwick, Deputy Minister of the Ministry of Education in consultation with David Brousson, Dean of Continuing Education and Industry Services, BCIT. These were:

Prince George — College of New Caledonia
Cranbrook — East Kootenay Community College
Port Alberni — North Island College
Terrace — Northwest Community College
Dawson Creek — Northern Lights College

When it later became apparent that a sixth terminal was available, William Robertson, Head of the Distance Education Department, BCIT, suggested Whitehorse as the sixth interactive site. The Ministry of Education and the federal Department of Communications agreed that BCIT should invite the Yukon Department of Education to participate. This invitation was accepted and the sixth TVRT was installed at:

Whitehorse — Yukon Vocational and Technical Training Centre

As LCETs were confirmed for delivery by DOC, participating colleges selected secondary sites within their respective regions. These additional sites were:

Fort St. John — Northern Lights College
Fort Nelson — Northern Lights College
Prince Rupert — Northwest Community College
Gold River — North Island College
Mackenzie — College of New Caledonia

Interaction was provided from these sites by conventional telephone lines. A complete technical description of the equipment used will be found in report No. 2 entitled "The Technical System and Its Operation".

Classrooms

At BCIT, two classrooms were specially equipped with television sets, cameras and telephones. One was the regular classroom where the instructor taught, the other accommodated overflow when the classes were too big to be held in one room.

Classrooms at the receiving sites varied in size, layout and location. Because of financial and space constraints, the choice of space for the IITV classrooms was not always the best: they ranged from the specially adapted area at BCIT to the sharing of library space at one site and the conversion of a storeroom, complete with a popcorn machine, at another. In all cases, both students and administrators accepted any necessary limitations and learnt from them what would be required should the project become an integral part of British Columbia's educational system.

Courses Broadcast

With the physical plant organized and ready to go, the first term started with regular BCIT courses selected by the participating centres. The results of this selection were courses in Mining, Forest Utilization, Refresher Modules for Graduate Nurses, Construction Administration, Reading and Study Skills and Careers in the Hospitality and Tourism Industry, all from the regular curriculum at BCIT. Since there was more programming time available than these courses could fill, additional courses were broadcast by BCIT for the Ministry of Communications, Transport and Highways.

Prior to the beginning of the first series of IITV classes, an additional five hours of broadcast time were released by DOC and the Ministry of Highways and the University of Victoria were invited to provide courses through Anik-B. The Ministry of Highways and BCIT jointly offered Concrete Technology, Survey, and Geology and Soils. Each week the University brought Faculty of Education instructors 50 miles by chartered float plane to offer the course Supervision of Instruction. All courses were broadcast live. However, back-up video tape recordings were made for distribution to receiving sites in case of equipment breakdown. Each such tape was erased at the end of three weeks unless the instructors asked that their tapes be kept longer for library use. In addition, some tapes were kept for the archives.

Reactions to the Programmes

Evaluations were made at weekly intervals throughout the project. During the first term it was found that the courses offered by the Ministry of Highways and the University of Victoria were well received. The specific audiences they drew were composed of people who could find time to attend them or were given work-release time. Another reason for the enthusiastic reception of the Ministry of Highways and the University of Victoria's courses is that they were in high demand by certain groups of people who received credit or some form of professional upgrading. This, in part, influenced the decision to broadcast more such programmes and other events during the second term.

Of the BCIT courses, those that ran in the evening were well received whether or not they carried credit. This reflected both high interest for the student and time available to study. The day school courses which ran in the afternoon were not so well received. The reasons for this, gathered from the ongoing evaluation measures administered throughout the first term, were that:

- —some courses conflicted with those which were already being taught by instructors at some of the colleges.
- —some courses were being offered in the early afternoon when most part-time students were at work and therefore unable to attend.
- —some non-college students found the level of instruction either too high or too low.
- —few courses selected by the colleges could be integrated into their regular day-time programmes and were handled as special events or continuing education courses.

Throughout the life of the project, weekly teleconferences were held through the satellite system between BCIT and the co-ordinators at the receiving sites. This gave the co-ordinators the chance to become familiar with the techniques of the satellite interactive telecommunications system. And, based on this practical experience, they were better able to make recommendations for changes within the system. It was during these conferences that the need was expressed for more courses designed for professional upgrading. Simultaneously, several outside agencies approached BCIT with course suggestions which were passed on to the colleges. These agencies also stimulated interest among contacts in the college regions. The contacts, in turn, approached the colleges for more information.

On the basis of this three-pronged approach—student evaluations, the weekly teleconferences and the stimulation from the outside agencies—the decision was made to alter direction somewhat for the second term which began on January 1, 1980. For this term, more hours were made available on the satellite and, therefore, more programmes could be broadcast.

The Ministry of Highways and the University of Victoria continued with their courses from the first term. BCIT continued those of their courses which had been scheduled to run for the two terms. In addition, several short, community interest seminar series were scheduled. These proved to be well received.

Effect on Learning

The prime objective of any course of study is that learning shall take place to a specified standard in given conditions. We already know that this objective can be reached in a variety of methods of distance education including education via ordinary television. Thus, it is reasonable to assume that IITV should achieve comparable results since it has potentially all the advantages of other means of distance education with the additional advantage of instant interaction with the instructor and with the other students taking the course.

As the project progressed, experience showed that certain changes in the approach to the medium needed to be made if learning via IITV was to be as effective as by other means. These changes were needed in various areas—instructional, administrative and technical—some were made during the project, others must await the inception of a permanent service. However, certain statements regarding the effect on learning can be made:

1. Evaluation showed that:
    a) results were comparable to those obtained in the regular classroom setting.
    b) most students were prepared to take additional courses via IITV if they were made available.
    c) there was high acceptance of the IITV system.
2. The Stanford findings[8] were confirmed.

For the people involved in this project, IITV was a very new medium and much was learned about the effects it can have on learning outcomes if the capabilities and the limits of the medium are not well understood and taken into consideration. It is clear that a study of these capabilities and limits in relation to the user's needs and level of knowledge of the medium must be included in an overall review of what will make IITV as successful as it can possibly be. Thus, there are some questions still to be answered because of some of the unique features of the system and the particular constraints of the project.

How Adequate Was the Equipment?

Because the project was deliberately undertaken on a restricted budget so as to ascertain general results before investing a large amount of money in a permanent system, the equipment bought could not all be of professional, near-broadcast standard. The decision was made to spend most of the available money on the equipment which formed the heart of the transmitting system. This meant that some equipment could not be bought at all and that the television cameras would have to be less versatile than they could have been had more money been available. Even so, the staff in the control room and the camera operators coaxed remarkably good work from the equipment they had. It was seldom that the transmitted picture was of unacceptable quality, or that breakdown prevented either transmission or reception. Breakdowns to video equipment were corrected during off air hours and no transmission delays were attributed to studio equipment. The few programme interruptions that occurred were caused by local failure of satellite receiving equipment which was usually quickly repaired.

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[8] See: Gibbons, J. F., et. al. *Off Campus Higher Education Engineering Instruction Using Videotape, Final Report.* Stanford: Stanford University, 1976.

It is clear that the setting-up of a television station, which, in effect, is what the BCIT transmitting studio is, requires the careful matching of equipment to the job it is expected to do. In some cases, better quality equipment of the kind currently installed will do a better job than was possible for the project. If IITV is to continue, equipment equal to the job and the possibilities of the medium must be installed.

Course Presentation and the Instructor

One objective of the project was to ascertain whether the medium was suitable for the transmission of regular classroom sessions. The idea was to reproduce the classroom atmosphere as faithfully as possible. However, this was not what happened. The differences between teaching in a regular classroom and teaching in front of a camera in a room which physically only approximates a classroom soon became evident. Instructors and students alike quickly discovered those classroom techniques which did not fit the new medium and, in the process, discovered what was needed. For example, whatever is written on the chalkboard needs to be larger and heavier than it need be in the regular classroom if the camera is to pick up a clear readable image. Anything the instructor writes at his desk which is to be picked up by the fixed overhead camera must be larger than normal writing. Visual aids of any kind must be very well executed if they are to be seen by the remote audiences clearly and without strain. These are fairly simple things which any instructor will learn to do quickly and automatically. However, of a different kind are those techniques which an instructor uses to carry his words more tellingly. These are the body language messages which we all use instinctively. The instructor who "comes across" best on television has a certain panache, an enthusiasm which his body movements, his facial expressions and the varied use of his voice convey. Some people naturally have this kind of "presence": some can learn it, some seem unable to. This ability is desirable in any instructor, but is essential for television presentations, as the students made abundantly clear in their evaluations.

There are two other limitations, at least for this project, which the classroom doesn't have—camera range and microphone cords. With cameras set in fixed positions, the instructor is physically constrained: he must be constantly aware of remaining within camera range. The cord from the lavalier microphone which hangs around his neck also limits his range and can entangle his feet. Not only can this be very inhibiting for those instructors accustomed to moving about the classroom, in some instances, such as a laboratory setting, the movement can be an essential feature of the teaching/learning process. It is clear then, that a camera capable of following the movements of the instructor is advisable in most instances and an absolute necessity in others and that wireless microphones would be an advantage. It is equally clear that careful instruction and practice in how to make the most effective use of the medium must be given to all those new to this method of instruction.

There are other factors which govern successful learning by IITV and these are treated at some length in the report entitled "Evaluation Perspectives", the fourth of the project reports.

Briefly, course presentation as well as the instructor's style of delivery need careful tailoring to the limits and special latitudes of distance education by IITV. If this is not done, while the adverse effects on some learning may be small, many students will experience sufficient dissatisfaction, either to turn them away or to make learning a burden to them.

Administration

Planning for the overall conduct of the project began at BCIT on March 1, 1979. At this meeting, under the chairmanship of Brousson, a committee, to be known as the IITV Task Force, was struck: it was to be responsible for the technical and physical facilities. During subsequent meetings, the advice and expertise of representatives from several organizations was sought. These included the federal Department of Communications, the B.C. Ministry of Education, and the participating colleges, Provincial Education Media Centre and Stanford University provided additional expertise to the planning committee.

The overall administration of the project at BCIT, was the responsibility of Brousson; the day-to-day operation and administration was the responsibility of Robertson and some members of his staff. At the receiving sites, the responsibility lay with designated regular staff members or part-time employees hired for this work. To all these people, IITV on the scale of the Anik-B project was very new. In general, the day-to-day scheduling ran according to plan, but from time to time problems arose: course materials would go astray; communication between BCIT and the receiving sites would suffer temporary breakdown; weather conditions would disrupt reception of the satellite signal, or would prevent students from attending class. Whatever occurred to disrupt the smoothness of the operation, a way was found to repair, replace or repeat.

Because of the constraints of time and money and their effects on the people running the project, frustration sometimes ran very high. However, almost without exception, these times of difficulty were used as spurs to innovation and renewed effort to "make things go". Had people not responded in this way, the project would probably have run well enough but not as much would have been learnt about what it takes in time, money, people, knowledge and equipment to ensure the success of a permanent venture into IITV via satellite.

Summary

The project proved that its major objective could be reached: that IITV is both feasible and acceptable as a means of teaching those who, for whatever reason, cannot take advantage of the educational opportunities offered by post-secondary organizations through their own local organizations or from their local campus. Education by satellite is capable of transcending constraints of time and space and reaching students at times and in places suitable to them. After becoming used to the new system, students like it and can learn as well and sometimes more easily than by other methods of distance education. In short, as a teaching/learning tool, IITV has a great deal to recommend it.

Technologically speaking, there was never any real doubt that IITV was feasible. More important was the need to develop skills for making the best use of the medium, the equipment and for co-operating with and co-ordinating a multitude of organizations. A by-product of working with the project was the ability to see how close is the possibility of fully interactive television as a normal part of our daily lives. Once again, science-fiction can become reality. Interactive television clearly has the potential for far wider application than the simple dissemination of information.

Financially, the project showed that IITV can be done relatively cheaply on a restricted basis. However, it is not clear that this would be so in the case of a permanent service since the system would require considerable expansion to operate efficiently in the long term. On the other hand, the greater the number of receiving sites, the more economical the system should be. What

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is also not yet clear is how financially rewarding to British Columbia it will prove to be simply because a much greater part of the work force will have access to new and upgrading learning as they pursue their careers. With the inception of IITV the two biggest hurdles to education for many who want it but could not get it have been overcome: available time and geographical location with the extra bonus of *immediate* access to tutors and fellow students. At one stroke, the isolation of so much distance learning has been eliminated, thus infusing the distance learning process with greater interest, greater chances of individual success and the as yet uncounted financial rewards for the province as a whole.

Successful administration is clearly the result of sufficient staffing with people of the right calibre. They must be conversant with the capabilities of the medium, have the student's interest at heart and be dedicated to the concept of equal educational opportunities for all.

Of all the things this project taught us, one of the most important was the value of co-operation in education. A clear example of this was the "Open House for the Health Sciences 1980" held at the University of British Columbia in March. This demonstrated not only co-operation in education but also the potential for making available vital services, in this case, medical. The two-way video and audio consultation between the UBC Cancer Control Agency and the Central Tumour Registry and Civic Hospital, Ottawa, was a perfect example of the potential for this kind of use of communication via satellite.

The ability to broadcast from UBC rather than BCIT, shows that there can be multi-originating centres. Such centres can be linked to the transmitting centre by a microwave-link as was the case with UBC's Health Sciences Open House.

The next step, one which is almost upon us, will be the reception of IITV in people's homes. In this case, interaction could be via one's own telephone. Later, but still not far away, people will be able to buy a small computer which will be connected to their television sets. This will enable them to call up any information of their choice, educational or otherwise, thus living-room learning will become as ordinary an occurrence as classroom learning is today. The technology is available now. It remains only to put into practice the combination of co-operation and technology for a truly exciting future for distance education in British Columbia. This concept can be broadened to embrace all aspects of education on an international scale.

Article 15

"Five Models for Media Courses at the University of Alabama, Birmingham"

by
Sara Ruiz de Molina

The more we track student demographics and need in our media courses at The University of Alabama in Birmingham, the more we realize that the audience is comprised of a wide range of individuals with diverse academic needs and learning styles. Our experience has shown that media courses serve many types of students—the student carrying a heavy course load, the individual able to take only one or two courses, the young student, the working adult, the student newly admitted to the University, and the individual returning to college after a lapse of years. As varied as the ages and lifestyles, so also are the ways they seem to learn best. We have offered our media courses in a variety of formats in order to provide the options needed by students for effective learning.

The design of our media offerings reflect these needs and provide diversity of subject matter, course level, teaching methodology and mode of delivery. This essay explores the factors pivotal to the success of media courses offered in five different formats at The University of Alabama in Birmingham. It examines the options available to students and assesses them in measurable terms and in terms controllable by the University administration.

From the point of view of administration, management of media courses can be improved by defining and modulating factors which are within the purview and control of the University. This essay focuses on four key factors as they pertain to media courses: the mode of delivery, methodology of teaching, student profile, and cost effectiveness.

During the last year, several courses were structured with a distinct media component and were offered in five different models. They include: a model with flexible viewings scheduled at the media center of the library and with a large component of independent study; a model based on a PBS series, not part of PTV-3; a model based on a PTV-3 course with repeat viewings on-campus; a model using cable television and interlibrary viewings; and a model taught entirely in a classroom setting.

The format developed for each model is based on two premises: first, the accessibility of the media component and, secondly, an attempt to tailor the course to the lifestyle of working students. The first aspect, the availability of the program, depends upon the legal agreement between the University and the licensor of the program. These agreements permit either great flexibility for using the media component or restricted use, limited by cost or copyright privileges. The second

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aspect, the lifestyle of our students, is incorporated into the design of the courses and has resulted in flexible and repeat viewing schedules, concentrated and limited on-campus meetings, and our ensuring the availability of the faculty member to lecture, discuss the program and answer student questions.

In the last several terms, courses from different disciplines have been taught in the five models. *The Ascent of Man* was developed by the Department of Biology around the highly respected Jacob Bronowski programs and is shown in the media center of the library. It is structured with a flexible viewing schedule and has few classroom meetings. A second model is based on programs available only over PBS. The Department of English developed a course around *The Shakespeare Plays.* Students are able to see the critically acclaimed productions only at the times scheduled by PBS, and they come to class once a week during a ten-week period. Also taught in this model is a course developed by the Physics Department around the Carl Sagan series, *Cosmos.* A third model involves the rental of Hollywood-style films which are shown in classes meeting once a week. It is a biographical history course entitled *Heroes in History*. Another course offered by the Department of History is *The Long Search: A Survey of Religions.* It represents a fourth model and is offered over a local cable station with repeat viewings in the library media center. The last model uses the PTV-3 offerings. One of these courses is *Teaching Students with Special Needs: Secondary Level.* It is offered as a graduate course through the Department of Special Education. The course gives students the option of watching over PBS or in the media center.

What is central to the mode of delivery is the shaping of the course around the availability of the media component, the pacing of the course around the lifestyle demands of the students, and the teaching of the course around the varied learning styles of the students. The delivery format of the five models reflects the limitations of a particular media component and, simultaneously, builds on its potential as an effective learning device.

From the point of view of University administration, teaching effectiveness may, at first glance, seem to have few controllable factors. Our experience has shown that faculty members who choose to teach media courses generally are creative and strive for academic excellence. Several factors have emerged which the faculty members address in designing their courses. These include: the pace of the presentation of subject matter and media material, the relationship between faculty and student, an environment conducive to learning, and a balance between the various components of the course. These concerns are incorporated in the design of the course, and, in general, faculty members take a highly structured approach to the organization and presentation of course content. Depending upon what factors are within the faculty members control, they design their teaching strategy to include flexible and repetitive viewing schedules, lectures, discussion sessions, question and answer sessions, written examinations, reading assignments, and supplemental material prepared to parallel the media component.

The Ascent of Man has been developed as a media course based on the thirteen one-hour programs narrated by Jacob Bronowski. The course has been designed around required viewings available at seven different times during the week. The weekly newsletter from the professor augments the course material and provides commentary on the particular film shown. Three textbooks are used in conjunction with the course. Two examinations are given. Each has objective questions drawn in large part from a question bank available to students prior to the mid-term and final examinations. There are also on-campus meetings for review, discussion, and answering of student questions.

The performances over PBS of *The Shakespeare Plays* is the basis of a media offering with classes meeting once a week and students viewing six plays during the term. The student text is the complete works of William Shakespeare. The course is paced to have discussion of the previous play during the first half of the class followed by lecture on the forthcoming play. The professor gives background on the next performance and alerts students to watch for particular aspects of characterization and the structure of important scenes. During the course there are three essay examinations.

Cosmos is shown periodically over the local PBS station, and an introductory physical science course has been built around the Carl Sagan series. The format of the course includes on-campus sessions for discussion and formal lecture as well as course assignments in the accompanying texts and study guide. The course content is divided into four segments with an essay examination given at the end of each section. The learning objectives which form the basis of the examinations are presented in the texts as well as amplified by the lectures and media component.

Heroes in History is based on the viewing of five Hollywood films. Students are given an overview of an historical era by way of lecture. They have required reading from history and literature for each class. Although the films and readings are chosen to be appealing to persons without extensive knowledge of history, the lecture gives students a thorough grounding in historical material. Students prepare two papers of three to five typewritten pages in which they make a critical review of the film in terms of its faithfulness to historical accuracy. There is a final essay examination.

The Long Search: A Survey of Religions is an introduction to Eastern and Western religions. On-campus sessions are held once a week and open with discussion of the film for about one-third of the class, and the remaining two-thirds are devoted to lecture. The professor has organized the material in three modes of presentation: viewing the films, reading the assigned material, and lecture. Pertinent concepts are presented in two out of the three methods for learning. Students take two examinations covering about half the course material. After the class meeting, students can go to the media center where they view and discuss the films with the professor. Other viewing sessions are available including seeing the programs over a local cable station. About one-third of the students opted to view at home. About half remained with the professor, and the others attended sessions at the media center scheduled throughout the week. Not all students had access to the cable viewing.

In *Teaching Students with Special Needs: Secondary Level* the course was designed as an upper-level, graduate education course from the Department of Special Education. The intent of the course is to apply the concepts introduced by Gilbert Schiffman in the film series to projects designed by the students who are teachers. Students come to campus on three occasions for meetings in a workshop format, prepare an independent project and have additional conferences with the faculty member on an individual basis.

Each of the models has been developed by faculty members who created the course around communicating ideas and conveying expertise about their disciplines. Their approach to teaching incorporates diverse modes of presentation, and the resulting course format is a carefully structured one.

The student audience which the faculty teaches is also diverse. Students come from varied academic and socio-economic backgrounds and bring to the course different expectations and needs for learning. To improve our service to students we keep a demographic profile of enrollees in media courses and try to learn what they find most and least valuable about the courses.

The data are analyzed from two points of view: the typical student enrolled in a media course and the newly admitted or "first term" student. This information is compared to data on the typical student in nontraditional courses offered at the University. The data are given in Tables One and Two.[1]

The demographic data gathered are used to gain insight into the lifestyles of students and their academic needs and preferences. A student profile is drawn including age, sex, student status, course load carried and length of time enrolled at the University.

There are two open-ended questions on each student questionnaire. They ask for the most valuable and least valuable feature of the course. Answers about the most valuable aspect generally group in three areas: format of course, quality of instructor, and course content or subject matter. The response is evenly divided, indicating a positive attitude toward each. Comments on the least valuable feature are less thematic. On occasion, a particular logistical problem might arise, such as a recurrently cold or locked classroom, and students signal repeatedly the inconvenience.

Students are also asked to give their preference and needs for future offerings. These responses provide the basis for curriculum planning and course development.

In addition to the student comments and requests for particular courses, the results of the questionnaire provide certain quantitative data about media students. One in every three enrollees is over the age of 25 years, and, in general, classes enroll slightly more women than men.

About 40% of media students in Fall Term 1981 had just entered the University or had returned after an absence of a year or more. The percentage of "first term" students varies from course to course and decreases somewhat as the academic year progresses. Students attending for the first time tend to be between 18 and 24 years of age, but one in five newly admitted enrollees is over the age of 25.

Student load is made up of the number of courses an individual is taking, and in media courses the average student load is greater than that of the typical nontraditional student. Students have commented that the flexibility designed into many media offerings has enabled them to increase their course load with the hope of accelerating their date of graduation.

Students in media courses are fairly evenly distributed in terms of status as a freshman, sophomore, junior or senior. Upperclassmen make up about one half the enrollment in media offerings, whereas just over a third of students in other nontraditional offerings are upperclassmen. It appears that upperclassmen are experienced academically and respond favorably to the course structure which places major responsibility on the student to act independently. This distribution holds true in courses with no prerequisite such as *The Ascent of Man*, *Cosmos* and *The Long Search*.

The data gathered from students are used to define student lifestyle, to develop options for students in choosing their course of study and to build marketing strategies for recruitment of students to the university. Underlying each of these factors is a focus on service to students and meeting their learning needs.

An additional behind-the-scenes component in media courses is the expenses incurred in offering them. Analysis of costs is done to have a basis for evaluating the course as a media offering, to compare it with other courses, and to gauge the lifecycle of the offering.

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[1] Data extracted from "Quality Control Report" prepared by Sara Heeter, Director of Marketing, UAB Special Studies, UAB.

Table One
Student Demographics
Fall Term 1981

	Typical Media Student	Newly Admitted Student in Media Course	Typical Nontraditional Student
Sex Ratio			
Male	41%	44%	42%
Female	59%	56%	58%
Age			
18-24	65%	86%	60%
25-35	24%	16%	27%
36-45	9%	4%	8%
over 45	2%	—	5%
Student Status			
Freshman	21%	47%	28%
Sophomore	26%	17%	21%
Junior	24%	15%	19%
Senior	24%	16%	15%
Graduate	5%	5%	17%
Newly Admitted Student (First Term of Attendance)	27%	100%	34%
Retention from Prior Term	60%	—	47%
Return after Absence of One Year or More	13%	—	19%
Student Load			
1-3 semester hours	11%	3%	19%
4-6 semester hours	17%	7%	21%
7-9 semester hours	41%	60%	35%
10-12 semester hours	25%	25%	21%
13 or more semester hours	6%	5%	4%

Cost analysis is based on a profile of all direct expenses plus a calculation for overhead. Faculty salary, marketing expenses, cost of the media component, allotment for telephone, reproduction and postage charges and other direct costs are entered on a budget prior to the computation for overhead. When the total costs are projected, a breakeven between revenues and expenses is figured by dividing student tuition into the total costs. This calculation yields the number of students required to meet expenses or, in other words, to breakeven between costs and revenues.

After the course begins, budgets are finalized and an indication of cost per student, cost per course and course per credit hour produced is derived. The data on the media classes under discussion are provided in Table Three. A typical course runs about $3,000 to $5,000 depending upon faculty salary and costs related to the media component and marketing. A course at the peak of productivity may cost $20 to $25 per student but a course at a mid-point in its development or decline may run $70 to $80 per student.

Table Two

Student Profile

	Ascent of Man	Cosmos	Heroes in History	The Long Search	The Shakespeare Plays	Teaching Students with Special Needs: Secondary Level
Sex Ratio						
Male	45%	63%	45%	37%	42%	0%
Female	55%	37%	55%	63%	58%	100%
Age						
18-24	50%	43%	14%	42%	23%	—
25-35	38%	43%	67%	48%	69%	33%
36-45	8%	14%	14%	10%	8%	67%
over 45	4%	—	5%	—	—	—
Student Status						
Freshman	13%	14%	—	7%	—	—
Sophomore	18%	33%	—	36%	—	—
Junior	33%	19%	19%	19%	44%	—
Senior	33%	33%	57%	32%	56%	—
Graduate	3%	—	24%	6%	—	100%
Newly Admitted Student (First Term of Attendance)	29%	9%	5%	3%	9%	—
Retention from Prior Term	64%	78%	71%	84%	83%	67%
Return after Absence of One Year or More	7%	13%	24%	13%	8%	33%
Student Load						
1-3 semester hours	23%	4%	32%	10%	39%	67%
4-6 semester hours	32%	21%	18%	44%	23%	33%
7-9 semester hours	25%	50%	27%	23%	15%	—
10-12 semester hours	13%	21%	14%	23%	15%	—
13 or more semester hours	7%	4%	9%	—	8%	—
Enrollment	291	44	26	54	38	8

Table Three

Cost Analysis

	Cost Per Student	Cost Per Credit Hour Produced	Cost Per Course
The Ascent of Man	$ 22	$ 7	$6525
Cosmos	$ 86	$28	$3822
Heroes in History	$102	$34	$2969
The Long Search	$ 81	$27	$4419
The Shakespeare Plays	$ 70	$23	$2894
Teaching Students with Special Needs: Secondary Level	$207	$69	$1658

Tracking these figures across time creates a profile of the lifecycle of the course. The classic case would be a bell-shaped curve, indicating a gradual increase in enrollment paired with a decrease in cost up to a point where the enrollment begins to decrease and the cost per student to increase. Our experience has shown that the lifecycle of a course follows in this general fashion. As the course passes its productive peak, we have tried to revamp the offering and to tailor it to the needs of a different student audience. Such efforts have met with success and have revived and prolonged the life of a media offering.

The lifecycle of the courses under discussion varies from new offerings including *The Shakespeare Plays*, *Teaching Students with Special Needs* and *Heroes in History* to mature courses including *The Ascent of Man*, *Cosmos*, and *The Long Search*. The format of *The Ascent of Man* and *The Long Search* have been revamped by faculty and are experiencing a resurgence in enrollment. The three new courses have been rescheduled and the pivotal factors will be tracked to gain insight into their potential as media offerings. *The Shakespeare Plays* and *Heroes in History* enrolled well on the first occasion that they were offered. *Teaching Students with Special Needs* enrolled less well, and factors such as course level, need of teachers in special education, and formats are being analyzed.

An understanding of lifecycle from the point of view of cost as well as an awareness of the costs of courses at the time they are given provide a basis for making decisions related to planning curriculum. This information also reveals the track record of particular kinds of costs, and attempts can be made to control them or budgets can be adjusted to allow for them.

In sum, the success of media courses seems to rest on a well-balanced triad: effectiveness of the media component, teaching talents of the faculty, and sound fiscal management. These elements are complemented by the independence and sense of responsibility that adult students bring to the learning process. Creating a curriculum of media offerings which meet the learning needs and lifestyle demands of students has taken these factors into consideration and has resulted in a wide spectrum of models for media courses. These models have proven to be cost effective, stimulating to faculty and challenging to students.

Article 16

"West Virginia HEITV: A Grassroots Approach to Telecourse Utilization"

by
Kathy Channell and Judith Parker

It is 5:30 on a weekday evening in northern West Virginia. Area television viewers can choose among several syndicated situation comedies, a couple of talk shows, one get-the-jump-on-the-competition news program, and . . . the opportunity to earn college credit while watching television. The same opportunity is offered in southern West Virginia on weekday mornings, and throughout the state on weekends. The household television set has become a means of earning college credit for thousands of West Virginians.

During the past five academic years, increasing numbers of state residents have tuned in higher education courses involving such diverse subjects as personal finance, astronomy, computers, and Shakespearean literature. As a result, television-based courses have extended the pursuit of a college degree far beyond the traditional classroom setting.

In many ways, West Virginia is unlikely territory for telecourse success. The state's population totals only about two million, and 61 percent of the residents are classified as rural. The population is widely dispersed throughout the state, with only seven cities over 25,000 (West Virginia Blue Book, 1980). Also, fourteen of the fifteen public colleges and universities are autonomous institutions with individualized student needs and academic programs. The state has three public television stations: WPBY-TV in Huntington, WSWP-TV in Beckley, and WWVU-TV in Morgantown. The three stations also function autonomously, with each serving a diverse audience. Further, the West Virginia mountains and valleys create a continuous challenge to adequate television reception.

Nevertheless, telecourses are thriving in West Virginia. As the 1981 fall semester came to a close, the state had accumulated *10,875* telecourse enrollments during a four-and-a-half-year period. The enrollment statistics provide more than a simple five-digit number. They lead to the story behind the headlines. First, television-based learning appeals to a great many West Virginia college and university students. Second, many state faculty members serve as telecourse instructors. Third, most state institutions have accepted the academic soundness of television-based learning. Fourth, public broadcasters cooperate with the effort. Fifth, the statewide structure for offering telecourses has continually attracted both students and teachers to this alternative learning environment.

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At this point, you may need a formal introduction to the term "telecourse." Telecourses are integrated learning units that combine instructional television programs with related print materials. Students watch the programs on their home televisions and complete readings and assignments at home. Three or four times a semester instructors gather students together for discussions or testing. Additional communication often takes place over the phone or by mail. Carol Herrnstadt Shulman, a researcher for the American Association for Higher Education, calls telecourses "the most recent stage in the evolution of instructional television," and believes that the units are "rapidly becoming the dominant mode in the field" (Shulman, 1981).

Courses used statewide in West Virginia have been designed and produced outside the state, and are acquired from various telecourse distributors. While the programs and materials have generally been high quality, academically sound units, it is the *use* of the telecourses in West Virginia, and not the units themselves, that provides a model worthy of close examination.

West Virginia has certainly not cornered the market on successful telecourse utilization. Locations such as Chicago, Detroit, Dallas, Miami, and Los Angeles call to mind testimonials of effective instructional television efforts. The Dallas County Community College District has been known to enroll over 10,000 telecourse students in a single year. If you compare figures alone, it took West Virginia four-and-a-half years to reach the same enrollment. Once again, however, you need to look beyond the five-digit number.

Most of the highly publicized successes have been accomplished in densely populated, urban settings. Dallas County, for instance, can boast of one-and-a-half-million residents within its boundaries. When you compare this with West Virginia's total population—about two million, with 61 percent of the residents classified as rural—you begin to see the uniqueness of the state's success story.

The key to high telecourse enrollments in West Virginia has been a grassroots approach. A handful of enthusiastic faculty and public broadcasters, working cooperatively with one another in the early seventies, managed to establish a series of small instructional television success stories. The momentum came from the "ground up," and control over what courses would be offered when, how, and by whom was in the hands of the individuals who wanted to see the course succeed. Today, the same grassroots philosophy has been carefully blended into an efficient statewide delivery system: the Higher Education Instructional Television (HEITV) project.

Even before the project officially began, fledgling efforts at telecourse use were based on such PBS offerings as THE ASCENT OF MAN, THE ADAMS CHRONICLES, and ANYONE FOR TENNYSON. Interest sparked by a few college faculty and station personnel resulted in isolated pockets of cooperation . . . a course here, a few students there. But more important than numbers were the possibilities for cooperative efforts that began to develop. The three stations talked of joint promotion campaigns, and of sharing program videotapes. The institutions discussed cost sharing opportunities to acquire telecourse materials. As a result of additional translators and an influx of small community cable systems, public television penetrated most of West Virginia. The increased reception was important to the academic community, which began to see how the state's rural population could be effectively and efficiently reached via public television. Interestingly enough, some of the "barriers" to telecourse success were being transformed into incentives to give instructional television a boost in West Virginia.

By 1975, it was time for a cooperative experiment. At a fall meeting of the West Virginia Association of Academic Deans, members supported a funding proposal for statewide use of the telecourse THE CONSUMER EXPERIENCE, produced by the University of Wisconsin at Green

Bay. The effort was funded with monies from Title One of the Higher Education Act of 1965. Eleven institutions offered the telecourse, broadcast by the three public television stations, during the 1976–77 school year, and reported a combined enrollment of 345 students.

More importantly, the Title One project set the foundation for statewide telecourse delivery. WWVU-TV, the licensee of the Board of Regents, was designated as the coordinating entity for the Title One project. Station staff acquired the programs, distributed printed materials, prepared a promotional campaign, and developed utilization activities for participating schools. The three television stations cooperatively scheduled broadcast times so one set of videotapes could be shared among them. Administrative and academic officials at colleges and universities made procedural changes to include televised course offerings. A quarterly statewide newsletter linking higher education and public television kept readers up to date on new possibilities.

The state Board of Regents, the governing body for all public colleges and universities, closely monitored the growing academic interest in televised course delivery. In the fall of 1976, the Regents became the catalyst for a more permanent statewide effort. Based on the success of the Title One project, the Regents Academic Affairs Advisory Committee, with the endorsement of the state's Educational Broadcasting Authority, voted to support statewide college credit programming with an allocation of $40,000. WWVU-TV was again asked to coordinate the effort, and a committee representing both academic and broadcasting interests was formed. The singular goal was to bring high quality instructional television to West Virginians in need of an undergraduate or graduate degree. By the end of the 1980–81 school year, telecourse enrollments had increased 91 percent over the first year's total.

Telecourse Students

Surveys completed at individual state institutions indicate that telecourse students frequently come back for more. For instance, a survey of current telecourse students at West Virginia University counted about 30 percent who had taken at least one other telecourse in a past semester. Surveys have also pointed to satisfied students as the best ambassadors for television-based learning. In a 1980 survey completed at two four-year colleges, almost half of the telecourse students said they "heard about the course from a friend." Word-of-mouth is a strong promotion tool.

There are many individual tales of success. Concord College graduate Carroll Lewis completed a bachelor's degree in 1979. According to Lewis, he achieved the degree with the aid of telecourses: "I was able to complete three courses which would have been impossible for me to acquire, living in a rural area such as Pocahontas County. Learning, like living, is an ongoing experience. I have encouraged others to enroll."

Another recent survey of telecourse students at West Virginia University gathered these student responses: "The course was a big help to me in that it required so little travel and yet a lot was covered." "The course brought a new insight. Even if I didn't get credit, I would still have taken the course." "I hope more courses will be developed."

Demographically, West Virginia telecourse students have a lot in common with their counterparts across the nation. Campus surveys have shown that many students are past the traditional college age, with the majority in the 25-to-45 age range. They frequently tend to be part-time, degree-seeking students, and overwhelmingly cite "convenience" as the main reason for choosing instructional television. Some students reside in hospitals or are confined to prisons. The demographic picture varies from course to course, and from institution to institution. But above all, high numbers of a wide variety of students choose to take a telecourse, semester after semester.

The Grassroots Approach

Decisions about the offering of telecourses begin and end with individual faculty members and public broadcasters. In between the first and last words, several communication links have been established.

Each college and university has appointed an HEITV coordinator who performs an important pivotal role within the statewide structure. Coordinators work with faculty to organize campus telecourse activities. They also provide two-way communication between faculty and the HEITV committee. In busy times, the revolving door can really pick up speed. Coordinators conduct faculty previews of potential telecourses, oversee course scheduling, facilitate student enrollment procedures, and work with promotion efforts. Many coordinators are either continuing educators or department chairpersons, and all have assumed the role above and beyond their academic responsibilities.

The three television stations have each appointed a staff member to serve in a similar role. At the station, the HEITV coordinator directs broadcast scheduling, arranges program recording and previewing, encourages utilization among schools within the coverage area, and provides two-way communication between station staff and the statewide committee.

The importance of continuous, effective communication cannot be overemphasized. The colleges, universities, and public television stations participating in the project reach literally from one end of the state to the other, north to south and east to west. Two universities, nine four-year colleges, three two-year colleges, and a second private school plans to use HEITV courses next fall. The diversity of student needs among the institutions should be obvious.

The beauty of the grassroots approach is twofold. First, each institution has direct influence on statewide telecourse decisions. Second, and perhaps more important, each institution maintains complete control over campus telecourse offerings. The result is maximum diversity and independence at a minimum cost.

For example, one telecourse was used throughout the state for six semesters. THE GROWING YEARS, distributed by Coast Telecourses, has been offered by 13 institutions, under six different department headings, for both undergraduate and graduate credit. A total of 1,114 students have enrolled in the telecourse, which has been renewed for the coming academic year. Similar stories could be told about 27 other telecourses offered during the history of the project.

The seven-member HEITV committee, appointed by the Board of Regents, acts in behalf of all participating institutions. The group meets approximately four times a year to oversee the budget, plan professional development activities, and determine statewide telecourse acquisitions. Robert Whiting, academic dean of West Liberty State College, has chaired the committee since its beginning. WWVU-TV's instructional services manager, Judith Parker, is the project coordinator.

Since the original Title One experiment, WWVU-TV staff have continued to coordinate statewide use of telecourses. The effort is no small task, and several staff members devote a considerable portion of their time to assure the project's success.

"Effective instructional programming is a station priority," according to WWVU-TV's general manager, C. Gregory Van Camp. Watching telecourse enrollments escalate has been a satisfaction for Van Camp, who believes modern technology and higher education "must support and complement one another. This project continues to be a positive step in the right direction."

Since 1977, the Board of Regents has twice increased funding for the project. All leasing and student fees, videotape purchases, and statewide promotion costs have been paid from the HEITV fund. Individual institutions provide faculty and coordinator time and often additional promotion efforts. Stations devote broadcast hours and staff time to the project.

The entire process has evolved into a dependable yearly cycle. The schedule for choosing and acquiring telecourses is worth tracing. About May of each year, educators and broadcasters throughout the state begin to track down new telecourse possibilities. Suggestions are collected throughout the summer months, and course distributors are contacted for preview materials. From September through November, boxes of telecourse previews travel from one institution to another. On each campus, appropriate faculty members evaluate the telecourses for their academic soundness and their appropriateness for higher education needs in West Virginia. In December, recommendations are passed from faculty through campus HEITV coordinators to the state committee. At this time, the core of the next academic year's statewide telecourses is selected. From January through April, campus coordinators plan with faculty for telecourse utilization. By May, contracts with course distributors have been finalized, coordinators can take a short break, and the process has completed a full cycle. As with other HEITV activities, the preview procedure places an emphasis on both academic-professional freedom *and* the practical sharing of cost, time, and expertise.

Consortia Possibilities

In West Virginia, the cooperative model continues to be a success. The term "consortium" has become a kind of current password for entrance into discussions about higher education and technology. The trick is to list ten consortia acronyms during the first five minutes of a conversation . . . sort of an instructional television "name that tune." In reality, as the use of telecourses has increased, cooperative efforts in the form of consortia have also increased.

News of consortia activities has become common. Carol Herrnstadt Shulman describes consortia as a practical approach that encourages institutions to pool resources, share expertise, and influence new telecourse development (Shulman, 1981). The 1981 fall issue of "The Coast Communicator," the newsletter of the Coast Community Colleges in California, gave an update on five instructional television consortia. James Zigerell, director of the AACJC-ITC (how's that for an acronym?), has, through several recent publications, stressed the benefits of consortia membership (Zigerell, 1981 and 1982). Incidently, for your next academic discussion, those eight initials represent the American Association of Community and Junior Colleges Instructional Telecommunications Consortium. Say that in one breath.

On the other hand, Ohio State's Joseph Oshins calls consortia an "abstraction" that erodes individual academic decision-making (Oshins, 1981). To put his definition in context, you should also know that he calls instructional television "a dangerously poor way to teach." As with any topic of national importance, there are opposing camps.

West Virginians involved with the HEITV project can testify to the success of the grassroots approach to consortium organization. Statewide cooperation has saved state dollars, because most distributors give the project a group discount. Broadcast and promotion costs have also realized a savings. In addition, the consortium has encouraged professional development by organizing several statewide workshops on telecourse utilization and marketing. Most importantly, control over the use of telecourses has remained in the hands of those who want to see the courses succeed.

In fact, the cooperative effort has worked so well within the state that the HEITV consortium has joined a larger consortium: the Post-secondary Education Council (PSEC). With support from the Central Educational Network, the PSEC has established a similar grassroots emphasis. Council activities and decisions are determined by its members. The ten states which are currently members enjoy group discount prices from telecourse distributors, and participate in professional development conferences. These and other PSEC activities have added a new, positive dimension to telecourse use in West Virginia.

For educators and broadcasters outside of West Virginia, knowledge of the state's telecourse success may be put to use in one of two ways. In an appropriate setting, the complete model may provide a workable approach to telecourse use. To adopt the HEITV model, the following elements should be included to achieve maximum benefit.

—a single coordinating agency.
—a single contact person for each institution involved.
—strong, continuous faculty involvement.
—public broadcast support.
—a central funding source, if possible. Funds can be acquired from participating institutions, but the support may be more difficult to generate.
—a yearly cycle.
—continuous communication.
—ongoing professional development.

If the complete model seems inappropriate, the use of one or more successful West Virginia strategies may be of benefit. In addition to the elements just listed, the following activities may also be helpful to other instructional television projects:

—a periodic newsletter.
—one or two telecourse experiments, to establish a successful track record.
—faculty previews of new materials.
—affiliation with a larger consortium.
—surveys of students, potential students, and faculty.
—combining promotion resources.

Educators interested in forming consortia may also want to read Heidi L. Mahoney's "Planning for Interinstitutional Cooperation." The 1980 paper details research about techniques for managing conflict between colleges, and suggests areas critical to the success of cooperative efforts. The document is available through the ERIC Clearinghouse on Higher Education (Mahoney, 1980).

For additional information or copies of materials detailing West Virginia HEITV, contact Kathy Channell, Adult Learning Specialist, WWVU-TV, P.O. Box TV-24, Morgantown, West Virginia 26507.

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Article 17

"Making Telecourses Work at a Small Private Four Year School"

by

Dorothy K. Paynter and Susan M. Rogers

Introduction

We have titled this paper "Making Telecourses Work at a Small Private Four Year School." With 16,000+ students the Rochester Institute of Technology (RIT) by most measures would not be considered a small institution of higher education. However, we used that modifier to differentiate our school and our program from more ambitious programs at larger schools or consortia. Rochester Institute of Technology is a private, four year institution dedicated to prepare students for "the making of living and the living of a life." It is primarily a teaching institution offering applied research activities to business, industries and agencies through the RIT Research Corporation. It offers degrees, diplomas, and certificates in fields such as business, accounting, printing, fine arts, photography, hotel and food administration, computer science, engineering, technology and a number of other technical programs. It is comprised of 10 colleges located on three campuses. RIT is the home of a number of nationally and internationally renowned programs: The School of Photographic Arts and Sciences, the School of Printing, the National Technical Institute for the Deaf, the School of American Craftsmen, Eisenhower College, and the Graphic Arts Research Center.

RIT is a well managed institution that moved to a brand new 1300+ acre, suburban campus in 1968. Five years after that move the institution was again operating in the black—this goal was reached five years ahead of schedule. In a tight economy, with declining resources and declining numbers of students from which to draw, RIT's enrollment continues to grow steadily at the rate of 5–7% per year. Over 60% of its full time undergraduate students are enrolled in programs that did not exist at the Institute 10 years ago. RIT's success can be attributed to its close relationship with industry. Each of its programs is monitored by an advisory committee consisting of experts from the field—industrialists, business agency employees and RIT faculty. Into this diverse and rich environment a Cable TV program was introduced in 1980.

Recognizing the potential offered by the rapid expansion of cable television in Monroe County for bringing RIT courses to a new and larger student audience, in the spring of 1980 a group composed of representatives from Instructional Media Services (IMS), the College of Continuing Education (CCE), and the Office of Instructional Development (ID) undertook a pilot project.

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We set out to explore the hypotheses that with cable television courses RIT could bring quality, credit-bearing instruction to both new and veteran CCE students for the same cost or less than on-campus instruction. Faced with a severe shortage of space plus mounting travel costs for students, the availability of a dedicated educational channel presented new opportunities for an expanded market.

With only limited preparation and marketing efforts CCE offered its first two cable television courses in the spring quarter of 1979 and enrolled 56 students. Based on this initial success we applied for and were awarded a Productivity Grant for $27,000.

RIT's Productivity Grant program was started to support projects and research to improve instructional productivity. That is, faculty and administrators were encouraged to write proposals for projects to explore ways to increase the faculty-student ratio for any given course, to reorganize curriculum to systematize delivery and improve instruction, and to eliminate redundancy and duplication of course and curriculum across the Institute. This grant, along with substantial support from CCE and IMS, made further testing and development of cable courses possible and allowed the program to grow more quickly than may have ordinarily been possible. From the outset, it was decided the projects' home would be in the College of Continuing Education. CCE delivers 60 some odd certificate, diploma and degree programs and courses to some 5000+ adult students every quarter at 12 locations including 9 off-campus sites.

The College of Continuing Education was chosen because its programs range across the disciplines of the other 9 colleges of the Institute. CCE has budgetary and administrative mechanisms in place to support a nontraditional delivery system. Senior level administrators, the Dean and Associate Dean of the College, expressed initial interest in the project and were supportive from the outset.

Planning

In planning for this new venture the self-named Television Course Group began by investigating programs at other institutions. We attended conferences, talked to distributors, and read everything we could find from other institutions using telecourses. We knew it was imperative that we use resources already developed and available in order to run an economical program on a relatively small scale. We made initial contacts with the academic units to solicit ideas and make them aware of our interest in this new approach to continuing education.

Very early in our planning the Television Course Group considered developing and producing complete television courses locally. The magnitude of such an effort both in terms of faculty and professional time as well as Institute funds became evident. We soon recognized that the only economical way we could offer a number of high quality television courses was to buy or lease existing course materials from major producers such as Coast Community Colleges, the University of Mid-America, Time-Life, and others.

Operations

Once we decided to use already produced course material as a basis for RIT television courses we faced a number of tasks. These tasks were: hiring a coordinator; finding video courses; modification of video courses; designing additional print material; getting faculty commitment; defining the role of the learning manager; scheduling with the cable companies; marketing; and evaluation.

Our reading and research indicated that the student learning gained from telecourses depends as much on the supporting structural operation of the courses as it does on the content of the TV programs, text or study guide. Our program needed someone who would be personally responsible for the overall program's operation. At RIT that meant setting up a part-time temporary (for the moment) position of Cable Telecourse Coordinator. Working with the Television Course Group, but out of the College of Continuing Education, the coordinator manages all aspects of the program.

While at first there seemed to be an ample number of college level courses available from various distributors, it became apparent that after eliminating out-dated, poorly-produced and those of only limited interest to potential students the supply of existing video course material became much smaller. *Finding video courses* that fit into the CCE curriculum and CCE faculty to review and approve existing video materials as a basis for credit-bearing courses reduced the possibilities even further.

We had elected to use existing course materials but the group felt that it was desirable and often necessary to modify such materials to improve their instructional effectiveness and identify them as RIT courses. In some instances this required extensive *modification of the video* sequence and substantial local production as in the case of *Science as a Humanity*. For virtually all courses *new or additional print material*, i.e., study guides, quizzes, and examinations, had to be developed. *Introduction to Microcomputers* required an elaborate study guide which tied together types from different producers and several texts. Such modifications and additions were done by Instructional Media Services and the Office of Instructional Development in cooperation with RIT faculty.

We recognized that we needed two kinds of *faculty support*—instructors willing to teach a TV course and faculty endorsement of the project itself. An important goal was identified in our planning discussions in regard to obtaining faculty support when we realized that Cable T.V. Courses had to be recognized as an integral part of the educational program at RIT. It could not long survive if it was perceived to be an add–on or experimental program. To make it "legitimate" we decided that cable courses would be processed through the college curriculum committee just as any other course would. They would in every case be given appropriate course numbers and students could use cable courses to fulfill some of the requirements of their degree programs.

Courses were initially given experiment course numbers until their quality and effectiveness was proven thru enrollment and course evaluations. Although the selection and approval process is more rigorous, we were able to offer several of the courses as additional sections of existing on-campus courses which eliminated the need for curriculum committee review.

By sharing research articles with department heads and faculty members and discussing their concerns for the limitations of telecourse learning we were able to convince some faculty members of the unique educational possibilities they presented. Engaging faculty in designing modification of courses to increase their instructional effectiveness was a good way to alleviate their fears and gain their commitment.

Winning over key members of the CCE faculty did not totally head off a heated debate about the viability of the courses. However, the point that carried the day was that many of the faculty who volunteered to teach a cable course appeared before the curriculum committee to talk about the courses and their merits. Oddly enough these instructors generally came from the ranks of the senior faculty and were well respected across the campus. Their prestige leant great weight to our credibility.

It was necessary to define for faculty who would be involved in assisting television students what the *role of learning manager* entailed. Though in certain respects less demanding than that of a teacher in a conventional class, the expectations of learning manager had to be defined and even more importantly made clear to participating faculty. We studied the role descriptions from various institutions already offering telecourses and designed one from this data that was right for our purposes.

Fully integrating the cable telecourses in the mainstream of CCE courses had an added purpose for our operations space. Registration, grade reporting, marketing and all other support services were done by the appropriate institute departments freeing the cable telecourse coordinator to concentrate on distribution of student materials, scheduling, marketing and evaluation of the cable courses. Each cable course student must receive an initial packet following the close of registration. In order to increase student involvement, we send students a variety of information as the quarter progresses. Timely return of assignments, clearly understandable course outlines and proper notice of progress are priorities for our contact with students.

Central to the entire program of cable television courses is *campus coordination and liaison with the cable companies*. In order to forestall any complications in scheduling the available education cable channels, the Director of IMS formed a committee composed of area educational cable users. Representatives of SUNY Brockport, MCC, BOCES East, and RIT meet periodically to discuss future offerings (to avoid duplication) and to negotiate a cable-cast schedule. Jointly producing this schedule reduces the number of contacts which cable operators must have with the educational institutions. Scheduling is important in order to provide RIT students with a variety of appropriate viewing times, particularly the scarce "prime-time" hours, Monday through Friday.

The Cable Television Group knew that no matter how careful we were in selecting and developing cable courses, unless potential students knew about the opportunity they would not enroll. Therefore, we developed and tested a number of *marketing* devices. These included brochures, advertisements in cable bills, advertising spots on cable educational channels, newspaper articles and advertisements, listings in CCE advertisements and course schedules and making CCE advisors aware of the new cable offerings.

The total cable television course enrollment over eight quarters has been about 660 students. The average enrollment per course is 25 students. The CCE average for conventional classroom courses is 22.8 students. (See Enrollment figures, Appendix A).

Evaluation

Any educational innovation such as cable television courses must be *systematically evaluated* for its quality and effectiveness and, for something as new and different as this, the nature of its market. Fortunately, Dr. Patricia Sorce from the College of Business with a professional interest in the marketing innovations joined us early in the project.

She and the Office of Instructional Development devised a survey instrument that captured both student reactions and experience in cable courses as well as demographic and attitudinal indicators. The survey was sent to all students in all courses in the first three quarters. The response rate was 58%.

Quality and Effectiveness

Student evaluation of telecourses quality and effectiveness was positive. On key indicators such as academic quality, relevance and worth, as compared to other CCE courses they had taken, respondents judged television courses as very good. Approximately eighty-three percent (83%) rated the workload in the television courses as the same or heavier than in conventional CCE courses. The rate of withdrawal in television courses was 6.6% as compared to 6.1% in regular CCE courses. This is significantly lower than the rate of withdrawal from television courses as reported in the literature.

Eighty-one percent (81%) of the responding television course students would recommend television courses to a friend. Fifty-five (55%) said that in the future they would take both television and regular courses. A full 15% said they intended to enroll only in television courses.

Faculty were similarly positive about the cable courses. Wiley McKinzie, Associate Professor of Computer Science, who served as learning manager in *Microcomputers* commented that "this course was a very good and effective way of introducing students to a fast growing technology and I, as the instructor, found it a very satisfying experience."

Claudia Kerbel, a CCE faculty member who has been learning manager in *Personal Finance* said: In addition to the increased flexibility cable courses offer to both faculty and students, we seem to be reaching an audience of students for *Personal Financial Management* on campus. There is a real community service provided to the many viewers who call to tell us they are getting this valuable information by watching the programs even though they have not registered for the course.

Carem Scalea, a veteran CCE faculty member who is facilitating in the Introductory Psychology course commented: An aspect of the cable course I particularly like is that I find students are watching the programs along with other members of their family. This can be valuable in helping students relate what they learn to their day-to-day lives; and, learning becomes a family activity.

Costs

As anticipated costs for cable courses were greatest in the start-up stage. Long term lease or purchase agreements for existing telecourses range in cost from $2,500 to $5,500 depending on the length of the lease and number of videotapes in the course. It should be noted, however, that the costs for producing the type of telecourse utilized in this project range from $200,000 to $500,000. Economic analysis of this project clearly indicates leasing is by far preferable to attempts to produce telecourses of the level utilized in this venture. Leasing arrangements often depend on negotiations with distributors.

As an additional expense, videotape copies must be made for each cable company, the Media Resource Center, and in some cases, for off-campus sites such as the Xerox Training Center and Tomkins-Cortland Community College. For a course such as *Personal Financial Management* the cost (5 complete sets) for copies was $2,250. This is a one time, start-up cost but it must be anticipated. Use at other campus sites also add to this expense.

A financial analysis from the beginning of the project indicates that, for the course *Personal Financial Management*, income after three quarters exceeded expenses (total costs including lease, share of coordinator's salary, production, tapes, etc.) by approximately $6,600. By the end of

Summer Quarter, 1981 this differential had risen to $13,000. An aspect contributing to the cost effectiveness of the course is the adjusted adjunct faculty payment scale. We worked out a formula in which a faculty member would take a percentage of his/her normal stipend for teaching a course. The rationale behind this decision was the fact that the instructor would not have to meet a regularly scheduled class, could do much of the student contact work from his or her home or office by phone. This has worked well for us so far.

It has become evident that, given normal costs of lease, rights, development, and production, and an average of 25 students per quarter, total costs will be recovered easily within three quarters. This includes amortization of leasing costs by the third quarter. Beyond the third quarter, the courses obviously become even more viable. It is particularly significant to us that, as television courses are viewed at home, they do not entail the use of expensive and high demand classroom facilities.

Our experience with this project has demonstrated that cable courses are a viable, effective, and economical form of instruction. With a committed television Course Group, extensive research and use of existing resources, both internal and external, we have been able to make our cable telecourse program an integral and cost effective part of the College of Continuing Education.

Appendix A

Course Enrollments

Quarter	Course	Total Enrollment
Spring 793	Science as a Humanity	26
	Personal Financial Management	30
Fall 801	Personal Financial Management	19
	Science as a Humanity	9
	Reading Efficiency	4
Winter 802	Contemporary Science—Oceanus	46
	Introduction to Microcomputers	42
	Reading Efficiency	4
Spring 803	Contemporary Science—Oceanus	20
	Science as a Humanity	12
	Introduction to Microcomputers	32
	Personal Financial Management	43
Summer 804	Introduction to Microcomputers	31
	Personal Financial Management	26
Fall 811	Science as a Humanity	23
	Psychology	13
	Introduction to Microcomputers	18
	Personal Financial Management	22

Appendix A—*Continued*

Quarter	Course	Total Enrollment
Winter 812	Science as a Humanity	22
	Contemporary Science—Oceanus	15
	Psychology	21
	Introduction to Microcomputers	44
Spring 813	Contemporary Science—Oceanus	20
	Japan: The Changing Tradition	28
	Introduction to Microcomputers	66
	Personal Financial Management	23

Article 18

"Consortium Uses of Telecourse Materials in Florida"

by
Thomas W. Hobbs

The Florida Community College System has several times served as a model for other community college systems. With the realization that television had become one of the dominant mediums of mass communication the Florida Community College System served as a model when it began the development in 1973 of the Florida Community College Television and Radio Consortium.

A major reason for the search for a cooperative method of organizing the presentation of televised college credit courses was that of cost. With relatively high costs of acquisition and of leasing documentaries, producing written materials, purchasing television broadcast time and adapting telecourses to local needs, it became apparent that television based instruction created special economic problems for a single institution.

The great interest expressed in a possible statewide consortium by several of Florida's public community colleges was such that with the aid of the Florida Department of Education plans were developed and approved for the formation of the Florida Community College Television and Radio Consortium. The plan assigned each of Florida's twenty-eight community colleges to one of six regions. Each of the regions was centered upon, and somewhat determined by, the local public television station's broadcast ability. Each college was to serve the student population of its own district and would share equally in the decision making processes and in the funding of the region's operations. Each region would choose a volunteer coordinator. These six coordinators would, in turn, meet on a statewide basis and would choose a chairman. This organization has functioned in such a way that the coordinators have shared in the development of plans, programs and new funding solutions. The organizational plan and resulting Florida Community College Television and Radio Consortium was approved by the Florida State Community College Council of Academic Affairs, the Florida Community College Presidents' Council, and by the Florida Division of Community Colleges of the State Department of Education. Subsequently, all twenty-eight colleges have expressed interest and have participated in the Consortium.

The Florida Television and Radio Consortium at the time of its formation was unique in that it developed from within the Florida Community College System. The Consortium was designed to meet the needs of the individual colleges and was not superimposed upon the system at the state level. Much credit must be given to Robert McCabe, President of Miami-Dade Community College who provided much leadership and support to the Consortium's development.

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From Thomas W. Hobbs, "Consortium Uses of Telecourse Materials," in *Organizing Telecourse Users: A Roundtable Discussion, November 3, 1980*, pp. 1–7. Used by permission of American Association of Community and Junior Colleges.

Additional encouragement, technical and financial aid came next from the Florida Department of Education. J. Warren Binns, Administrator of Educational Television and Radio, agreed to assist the Consortium. This aid came in many forms but two of the most important were the leasing by the Department of Education for the Consortium, the majority of its televised courses and secondly, that it served as a dubbing center for all series offered by the Consortium. Both of these actions greatly relieved the financial burden placed upon the Consortium's member colleges.

Locating Materials

A problem that often arises for educational television consortiums or associations that do not themselves produce their own television based course materials is that of locating appropriate materials. Until the recent addition of such listings as those of AACJC much of the search for new material was on a hit or miss basis. Often first knowledge of the existence of a telecourse has been gained from the varied public relations efforts of the individual producing entities. Other sources have been the various educational television or audio visual workshops with their displays of equipment and materials.

The difficulty of locating a wide variety of materials have been especially acute in the areas of high student enrollment such as the widely found general education courses. These freshmen and sophomore courses across the nation enroll thousands of students each college term yet there have been very few television based courses produced to fill this need. It is true that a number of high quality course materials such as "As Man Behaves," "The Growing Years," "The Ascent of Man," "It's Everybody's Business" have been produced with many colleges now using them. Many other colleges and universities have tried to enter this instructional area but often their efforts have centered upon the recording of lectures and slide show presentations. While it can be said those presenting the materials were often talented professionals in their respective fields of academic endeavor they have often possessed little knowledge of the limitations and potentials of television based instruction. Due to the often poor or limited production procedures many of these program series are simply not being used by the majority of colleges now offering television based instruction. There are several reasons for this reluctance, one of which is that of low appeal to the student. The college student of today is accustomed to viewing and using high quality audio visual materials. Materials produced poorly will receive poor student usage and will have a resulting low student enrollment. A second problem linked to poor production quality and style is that many television stations today are reluctant or will refuse to use poorly produced educational materials during prime hours due to the lack of viewer appeal. The local stations when reviewing telecourses must consider the general viewing public of which the stations does not wish to lose its share due to extremely poor production of the television series.

It is not that excellent instructional courses cannot be produced. One only has to view such series as "The Ascent of Man," to have the enjoyment of factual materials being presented in an enlightening and entertaining style. The number and variety of these courses for use in general education has continued to be severely limited. Additional production work must be undertaken in this area. It is not that it cannot be done because such institutions as Miami-Dade Community College, Dallas Community College and Coastline Community College have been doing it for several years.

The television based courses offered by the Florida Community Colleges are usually chosen on the basis of consortium agreement. The Florida Consortium regional representatives meet regularly to conduct reviews of available materials and to discuss future needs. After initial viewing by the region representative the recommended tapes are then viewed by the faculties of the individual colleges in each region, which then make their recommendations to the regional coordinator who then in agreement with the other five coordinators recommends what the State should lease or buy.

Adaptation of Materials

The adoption of a television based course is very often not as simple as it may at first seem. Quite often a lengthy period of review by instructional faculties of the course objectives and content takes place. Occasionally questions arise as to advisability of totally adopting such a course with all of its content and components. In some instances only the reordering of the sequence of tapes has been necessary. In a majority of instances extensive modification by either state, regional or local consortium professionals has had to take place on at least one part and on several parts of the course package.

Many of the changes have resulted when there arose differences between the television based course materials and the local curriculum. Other changes have occurred in efforts to modify the courses so as to lessen faculty resistance to telecourses. In one instance changes were made to reflect a more local focus. The very popular series produced by Miami-Dade Community College, *Man and Environment I and II* was an excellent example of the range of adaptive changes. The series consisted of thirty one-half hour tapes which were equally divided between the series' two courses. North Florida Community College at Jacksonville believed that a more local focus to the course was needed and so produced its own series of tapes to be used with those of Miami-Dade Community College. Other changes involved in adopting these two courses could be found in the Central Florida Region of the Consortium. Here, not only were tapes reordered as to sequence there were new study guides developed and different textbooks chosen.

Consortium Benefits

The resulting advantages to the Consortium's individual member colleges have been numerous. Each college has shared in the selection of courses and has had the flexibility of participating or not participating in any of the course arrangements. This system of cooperation has helped all colleges in that it provided a greater sharing of expertise in such activities as the selection of materials, the development of faculty workshops, study guides and other printed materials. Another advantage of this Consortium was that no longer would any individual college have to pay all the costs, for by cooperating, they paid an equal share of costs.

Recommendations

The American Association of Community and Junior Colleges should consider the establishment of an organization of telecourse users within the Association. If properly organized and funded the organization would be able to aid the users of television based materials throughout the nation. The various areas of activity in which such an organization would work are numerous. The problems associated with the limited number of telecourses that could be used in general education is one such area of concern. Concentrated effort not only in manpower but also skills and appropriate funding is needed. Another concern of such an organization would be the development of needed funding for the organization's activities and programs. By functioning as an integral part of AACJC the various hinderences of achieving the needed funding from governmental agencies and foundations should be somewhat eased.

A third area of concern and a major point of concentrated effort would be to work with the colleges and organizations that are producers of telecourses. This combined effort should take place not only in the actual uses of the telecourses but also in the development and design stages of production. This would allow greater access to what is being produced and would also aid the producers to be discerning the actual needs of the users. Hence greater and wider uses of telecourse material would hopefully result.

As to the organizational structure of this proposed new organization within the Association one might review the organizational structures and strengths and weaknesses of several operating educational consortial groups now in the United States.

Article 19

"Closed-Circuit Educational Television (ITFS) in Northeastern California"

by

Ralph F. Meuter, Leslie J. Wright and Charles F. Urbanowicz

Introduction

California State University, Chico (hereafter CSU, Chico) is part of the California State University System which includes 19 individual campuses. The System, established in 1961, is currently known as the California State University. The two other major components of public education in California are the California Community Colleges and the University of California.

The service area of CSU, Chico is approximately 33,000 square miles, or roughly 21 percent of the area of the state with a resident population of less than 600,000 individuals or roughly 2.1 percent of the state's entire population. A pressing problem over the years has been "how to deliver quality education throughout the region," since enrollments at a remote site frequently cannot support the expense of sending an instructor off campus. An answer to this problem appeared in the Spring of 1975 when the closed-circuit television system known as "Instructional Television For Students" (ITFS) became operational and CSU, Chico began offering classes at Regional Learning Centers throughout Northeastern California.

The CSU, Chico ITFS/Microwave System is currently a one-way video, two-way audio system which is live and interactive. CSU, Chico is licensed to operate four channels but currently only one channel is utilized due to the limitation of a single broadcast classroom. The ITFS classroom can comfortably seat 32 individuals. In the classroom are four television cameras, two of which face the front of the class to pick up the instructor, one camera which is an overhead camera over the instructor's desk, and one camera at the front of the classroom which can televise the on-campus students to the viewers throughout the region. The instructor is outfitted with a wireless microphone and there are sixteen microphones in the classroom (one for every two students) so the students in the CSU, Chico class can also interact with the off-campus ITFS student.

Since the Spring of 1975 an extremely wide variety of courses have been offered over the system (Table 1). The CSU, Chico system is a unique model in the CSU system and numerous individuals from a variety of institutions in California (and North America) have expressed interest in the CSU, Chico ITFS/Microwave system to make plans for their own ITFS/Microwave systems.

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From Ralph F. Meuter, Leslie J. Wright, and Charles F. Urbanowicz, "Closed-Circuit Educational Television (ITFS) in Northeastern California: The 33,000 Square Mile Campus," Presented at the World Future Society's Fourth General Assembly, Washington, D.C., July 18–22, 1982. Used by permission of the authors.

Background

Located 99 miles north of the Capitol at Sacramento, CSU, Chico was originally established as a State Normal School in 1887 and became a State Teacher's College in 1921. In 1924 the California Legislature authorized the Chico campus to become a four year College and in 1972 Chico State College became California State University, Chico. CSU, Chico is the second oldest institution in the CSU System and in Spring 1982, CSU, Chico had an on-campus enrollment of 13,637 individuals generating approximately 12,170 FTE (or Full Time Equivalent students). The University is located in the City of Chico and the greater Chico area has a population of approximately 50,000 individuals.

The history of CSU, Chico is very important, we believe, for an understanding of the success of the ITFS/Microwave system throughout the northeastern part of the state: the University has an excellent history throughout the area and also an excellent reputation among teachers throughout the State. Consistently, since the Spring of 1975, the heaviest enrollments in the ITFS courses have come from Education courses offered in the 4–7PM time slot (and on various Saturdays from 9AM–Noon) and Education courses have accounted for almost 50 percent of all ITFS enrollments to date (Urbanowicz 1981), with Spring 1982 Education ITFS enrollments representing some 56.7 percent of all the Spring 1982 ITFS enrollments.

Brief History

In the Spring of 1975, the ITFS/Microwave system began operation on the CSU, Chico campus. Originally authorized in 1963 by the Federal Communications Commission, ITFS (officially described as "Instructional Television Fixed Service") was intended to provide:

> a means for the transmission of instructional and cultural material in visual form with an associated aural channel to specified locations for the primary purpose of providing a formal education and cultural development to students enrolled in accredited public and private schools. (Quimby et al., 1974: 40)

In 1966 there were only six ITFS delivery systems in the entire United States, but by 1976 there were 186 (Myers 1977: 66). A great deal of time and planning was conducted prior to the ITFS system becoming operational on the CSU, Chico campus, and a monumental document was a 1972 report by W. W. Hall entitled NORTHEASTERN CALIFORNIA HIGHER EDUCATION STUDY: A REPORT PREPARED FOR THE CALIFORNIA RURAL CONSORTIUM AND THE COORDINATING COUNCIL FOR HIGHER EDUCATION. Hall's report laid the framework for much of what transpired in the decade of 1972–1982 and has been cited and referred to in every major grant that CSU, Chico submitted for the construction of the ITFS/ Microwave system.

Development and Growth

From an initial CSU, Chico-University of California, Davis, link in the Spring of 1975, the ITFS/ Microwave system has been expanded through a series of grants and CSU, Chico support into an integrated network which currently consists of 13 Regional Learning Centers, the closest one located in the community of Red Bluff, which is 42 miles from Chico and the most distant Regional Learning Center located in the community of Yreka, which is 173 miles from the Chico campus.

Two additional sites are scheduled for completion by the Fall of 1982 (Susanville, 105 miles from Chico and Quincy, 99 miles from Chico). Two or three additional locations are being considered for future Regional Learning Center sites.

In the Spring of 1975 there were 22 off-campus enrollments in the eight courses offered that semester via the system; enrollments have grown over the years as the system was expanded and in the Spring of 1982, there were approximately 388 enrollments in 25 courses.

When ITFS was originally established on the Chico campus in 1975, only self-support courses were offered via ITFS and students paid Extension fees to receive credit for their courses; in the Spring of 1980, however, the decision was made to offer regular, state-supported courses via ITFS. Off-campus students were then able to register and pay the same fees "as if" they were attending class on the CSU, Chico campus and, in turn, these students generate FTE for the University. (It has been roughly estimated that the off-campus students generated approximately $132,000 for CSU, Chico campus through the FTE generated by their attendance in courses in the off-campus Regional Learning Centers in the year 1981–1982. This is $132,000 that the University would not have seen were it not for ITFS/Microwave.)

Initially, ITFS classes at CSU, Chico consisted of a smorgasbord of courses and off-campus students took these courses for general enrichment. When the ITFS program began offering regular, state-support classes and as the technical side of the ITFS/Microwave system was expanded and developed, improvements also came about in the curricular side and degree plans for ITFS were created. Currently, off-campus students can complete the major components of the B.A. degree in Social Science by means of the ITFS/Microwave system. In addition, a certificate in para-legal studies is also available via ITFS, a Minor in Psychology is being planned, a Business degree is being considered, and there are plans for future courses that might lead to a degree in Electrical Engineering. Large components of a Computer Science degree and a degree in Education are also available via ITFS. In addition to the regularly scheduled courses offered from 8AM to 10PM, Monday through Friday and 9AM to Noon on Saturdays, the CSU, Chico ITFS/Microwave system is also used for regional conferences, committee meetings, student advising and the like on a time-available basis. We are rapidly approaching the point where a second ITFS channel could be utilized.

The support base for the CSU, Chico ITFS/Microwave system is a tremendous one. We have the total support of the Central Administration, and the President of CSU, Chico, Robin S. Wilson, is an ardent supporter of the ITFS system.

Intersegmental support for the ITFS/Microwave system is also extensive: in 1972 the Northeastern California Higher Education Council (NCHEC) was established and it currently consists of CSU, Chico, UC Davis, and the seven Community Colleges within the region: Butte College, Yuba College, Shasta College, Feather River College, College of the Siskiyous, Lassen College, and Sierra College. Three Regional Learning Centers are currently located at Community Colleges, two additional Community College locations will open by the Fall of 1982, and an additional Community College is being considered for a Regional Learning Center. In addition to the three Community College locations we currently have sites located at a Military Base, an elementary school, two high schools, four County or District School Offices, and two area industries. All of the Regional Learning Centers are equipped with either radio or telephone for interaction back to the CSU, Chico campus ITFS classroom while the class is being broadcast live. It must be stressed that the CSU, Chico ITFS/Microwave system is a live and interactive system and although the classes throughout the day are taped (in case of technical problems), the tapes are erased the next day and used over again. In the event of an unlikely ITFS/Microwave system failure, the tapes—in either VHS, Beta or 3/4" mode—are shipped out to the Regional Learning Centers where the students can view them and then return the tapes.

In addition to the Regional Learning Centers which have been established throughout the region over the years, subscribers to participating cable companies also have the ability to receive the live ITFS television instruction from the CSU, Chico campus in their own homes if they rent a "brown box" which converts the mid-band ITFS signal. Currently we have cooperative agreements with four cable companies serving Northeastern California.

ITFS, "Instructional Television For Students", is truly a University-wide endeavour, with courses being offered from virtually every department on campus; the ITFS/Microwave network is coordinated by the Center for Regional and Continuing Education and the Center coordinates the activities of registration, test proctoring, sending out of course syllabi and materials, student services, advice, library services associated with the off-campus student and the like. In virtually every respect, the off-campus ITFS student is treated "as if" he or she were attending the class "live" on the CSU, Chico campus: student ID is provided, library services are available, and a 20 page ITFS STUDENT HANDBOOK is distributed to every enrolled ITFS student.

Conclusions

The CSU, Chico ITFS/Microwave network is a unique and cost-effective method of delivering high quality educational services to a widely distributed population. Indeed, the CSU, Chico ITFS/Microwave network has served as a model for many campuses within California and a lengthy 1980 report for the California Commission on Extended Education, entitled TELECOMMUNICATIONS APPLICATIONS FOR EXTENDED EDUCATION IN THE CALIFORNIA STATE UNIVERSITY AND COLLEGES, pointed out the potential of an ITFS/Microwave link throughout the entire State of California, with satellite earth stations anchored at various CSU institutions.

Plans are currently under way on the campus of CSU, Chico to provide each of the Regional Learning Centers with advanced telecommunications devices. These plans call for the eventual installation of slow-scan television at each of the sites (to allow for visual feedback from the off-campus locations back to CSU, Chico), high speed facsimile transmission devices, and computer terminals which will provide both hard and soft copy (Figure 1). Indeed, the computer terminals in the various Regional Learning Centers will link the rural inhabitants of Northeastern California with one of the few machine-readable library catalogues in the entire world. The CSU, Chico campus has converted over 300,000 titles in the library (serials, periodicals, non-print, and book titles) into the machine readable format and this catalogue will be available to the off-campus student as a microform or on-line through the computer terminals.

Eventually, through the advanced telecommunications devices we plan to install at the Regional Learning Centers, students off-campus will have direct access to the entire CSU, Chico University library as well as various data base searches and a wider variety of student services will also be available to the off-campus ITFS student. The purpose of all of these devices is to enhance the instructional experience for students and faculty at CSU, Chico.

Without ITFS/Microwave and the tremendous on-campus and off-campus support, CSU, Chico would be a relatively small rural University going into the 21st Century. As it is, since

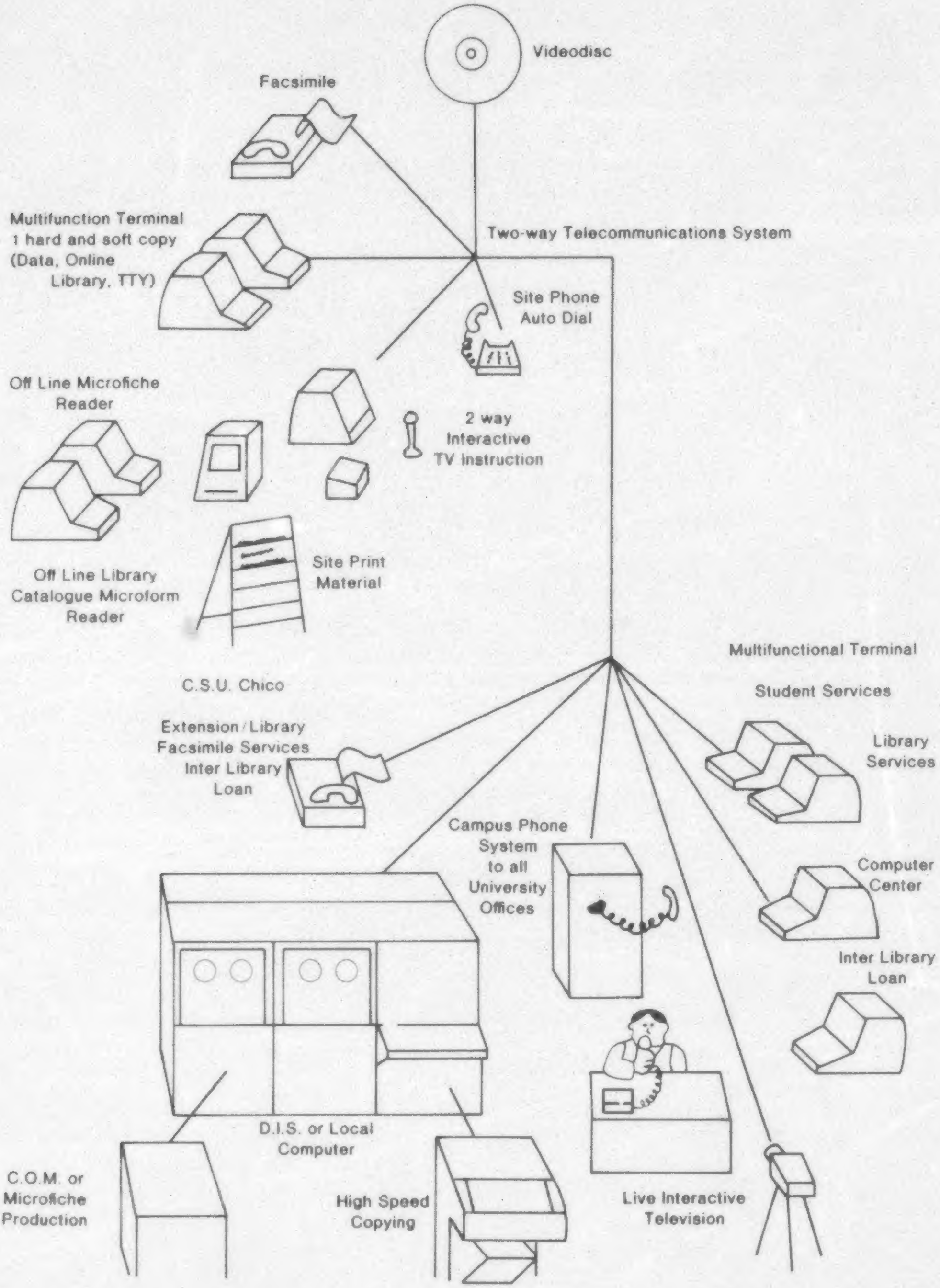
Videodisc
Facsimile
Multifunction Terminal
1 hard and soft copy
(Data, Online
Library, TTY)
Two-way Telecommunications System
Site Phone
Auto Dial
Off Line Microfiche
Reader
2 way
Interactive
TV instruction
Site Print
Material
Off Line Library
Catalogue Microform
Reader
Multifunctional Terminal
C.S.U. Chico
Student Services
Extension / Library
Facsimile Services
Inter Library
Loan
Library
Services
Campus Phone
System
to all
University
Offices
Computer
Center
Inter Library
Loan
D.I.S. or Local
Computer
C.O.M. or
Microfiche
Production
High Speed
Copying
Live Interactive
Television

Figure 1. Learning center site.

Table 1

ITFS Courses in the Past Have Included the Following:
King Tut
Mainstreaming
Survey of Finance
California Gold Rush
Sociology of Religion
Computer Morphology
The Bible as Literature
Literature for Children
Cultural Anthropology
Comparative Education
Psychology of Prejudice
Literature for Adolescents
Science Fiction / Science Fact
Women in American History
Bigfoot and Other Monsters
The Ruins of Ancient Mexico
Overview of Special Education
Peoples and Cultures of Hawaii
Proseminar in Special Education
Management of Cost Accounting
Seminar in Educational Sociology
Foundations of Bilingual Education
Introduction to Public Administration
Administration of Pre-School Programs
Curriculum Development: Social Studies
Spatial Concepts in the Study of Behavior
Survey of Child and Adolescent Psychology
Current Trends in Statistical Analysis in Education
Senior Seminar in Management Decision Simulation

"Instructional Television For Students" is such an integral part of the University's planning, California State University, Chico, is on the "cutting edge" of educational technology and communications in California.

* * *

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Section IV

Offering Telecourses

Introduction

Article 20
"Telecourse Adoption" by Kiki S. Munshi

Article 21
"Role of the Faculty in Mass Media Courses" by Hyman H. Field

Article 22
"Communicating with Distant Learners" by J. Terence Kelly and Kamala Anandam

Article 23
"Working with Telecourses" by John L. Flanagan

Article 24
"The Administration of a Telecourse Department" by Charlanne Jelen

Article 25
"This Year's Blond or a Star for the 80's? Administration of Telecourses at Dallas" by Nancy Miller

Article 26
"Developing Technology to Enhance the Educational Process" by Allan E. Hershfield

Section IV

Offering Telecourses

Introduction

In this section we read about some of the details of implementing or offering telecourses: how they are selected by colleges and television stations, what telecourses mean for faculty members who teach them, what kinds of special services are needed by "distant learners" in telecourses, and the administrative arrangements which have been used in offering the courses.

One conclusion that can be drawn from reading these and other articles on offering telecourses is that for educational institutions, telecourses require a different organizational arrangement than does traditional instruction. For one thing, offering telecourses requires a great deal of advance planning by many staff members, not just a single instructor. Deans, vice-presidents, public relations officers, media directors, or various other administrative staff may be involved, and they must become involved long before the course is offered.

Another difference between offering courses by television and courses by more traditional instructional methods is the necessity for cooperating with, even depending upon, other institutions. Relationships such as this may include joining in consortium with other colleges and universities to offer telecourses. And, unless the college or university owns a television station, telecourses require close working relations with a broadcasting station—public, commercial, or cable. Such relationships with agencies outside the school whose mission is not education require time and mutual give-and-take for both sides. Colleges which have experienced such problems as last minute cancellation of programs, lack of repeat broadcasts, or inconvenient broadcast times have, understandably, given up the whole process of offering telecourses. (See Article 43 for further discussion of the problems of station-college collaboration.)

The need for advance planning and for cooperation with outside agencies are just two examples of how offering telecourses requires devising new and different administrative arrangements. It is somewhat surprising that more hasn't been written on the details and approaches taken in offering telecourses, especially since such courses require changes in duties and practices of college personnel. While the day-to-day arrangements made in offering telecourses may seem mundane and unimportant outside the institution's walls, they are important for two reasons. First, these arrangements reveal much about the institution's basic assumptions about its role in providing education, the role of faculty members in the educational process, and the school's responsibilities toward students. Second, there are so many different ways to offer telecourses that sharing of the details of what works and what doesn't work may help others new to the process.

The first selection is an excerpt from the publication that resulted from the Station-College Executive Project in Adult Learning. In her report, Munshi describes a survey of educational institutions and television stations whose purpose was to collect data concerning how these institutions select and acquire telecourses. The Munshi report provides useful lists of questions which should be raised by leaders of both television stations and educational institutions as they plan for offering the courses.

Two articles in this section deal with questions about the relationship of faculty members and televised instruction. In Article 21, Field describes the role of academics in the process of planning and producing telecourses, as well as the different but important role they have in offering telecourses. Hershfield, in Article 26, examines some of the traditional responsibilities of faculty members on a university campus and analyzes how these reponsibilities may inhibit them from participating in any aspect of television instruction. Hershfield's list of policies and practices intended to facilitate the use of instructional technology may be very useful to planners on university campuses.

Roles are not the only source of problems in the faculty-telecourse relationship. Flanagan (Article 23) notes the "not invented here" syndrome of faculty as one of many practical problems encountered in offering telecourses. He briefly describes problems of unexpected costs and comparison of telecourses with on-campus courses for the purpose of awarding credit, as well as the need for (and problems with) consortial arrangements to acquire and offer telecourses.

Many schools offering television courses as a form of distance education are finding it necessary to develop totally new procedures for communicating with students. While independence and autonomy are desired by many telecourse students, research suggests that frequent contact of some kind with students increases the chances for successful completion. For example, Miami-Dade Community College District has demonstrated high student retention rates in telecourses where an individualized program of student feedback is provided. Miami-Dade's Kelly and Anandam describe the philosophy behind, as well as the need for, special student services (Article 22).

The details of offering telecourses at two other two-year college systems are described in Articles 24 and 25. Coastline Community College in Fountain Valley, California, enrolls over 4,000 students each semester in telecourses. Coastline is the only college in a three-college district with a mandate for television and other forms of non-traditional, distance education. Dallas County Community College District offers its telecourses through all seven of its district's colleges. Both television program production and course offering are coordinated by the Instructional Television (ITV) Center, whose organization and function is described by Nancy Miller, the center's director of instructional services.

Article 20

"Telecourse Adoption"

by
Kiki S. Munshi

For both stations and colleges, the decision to use a telecourse differs depending on whether the course is a wrap-around for a nationally broadcast series, or is locally purchased and aired.

Stations

In point of fact, a station does not "adopt telecourses": Its decision to air wrap-around series is based on an array of factors of which educational potential is probably a minor consideration; courses *for* television are normally chosen by the educational institutions. If the station participates in the latter process, it is most likely to be a senatorial "advise and consent" role. Figure 1 is a possible flow chart for these processes.

When a station chooses to air a series upon which a telecourse is based (such as *The Ascent of Man* or *The Shakespeare Plays*), its general considerations, as with any program, are likely to revolve around its audience. Its perception of "audience" and how it should be served is linked to the philosophy of the station. To some—often community licensees that depend in large part on memberships for funding—audience size is extremely important. To others, the ability to meet the needs of a particular group overrides the importance of numbers. Beyond this (but inevitably related to it) the quality of a program as measured in production values and technical requirements is important, maintaining a balance in programming among several different programming categories is important and, of course, cost or its absence is important.

If a station decides to give more time and energy to post-secondary education than simply to air wrap-around courses, a set of decisions follows. These are:

- How much time shall we allot telecourses each week?
- What times?
- Will there be charges? If so, what and how much?
  Air time?
  Flat per-head student fee?
  Percentage of enrollment fee?
  Videotape costs?

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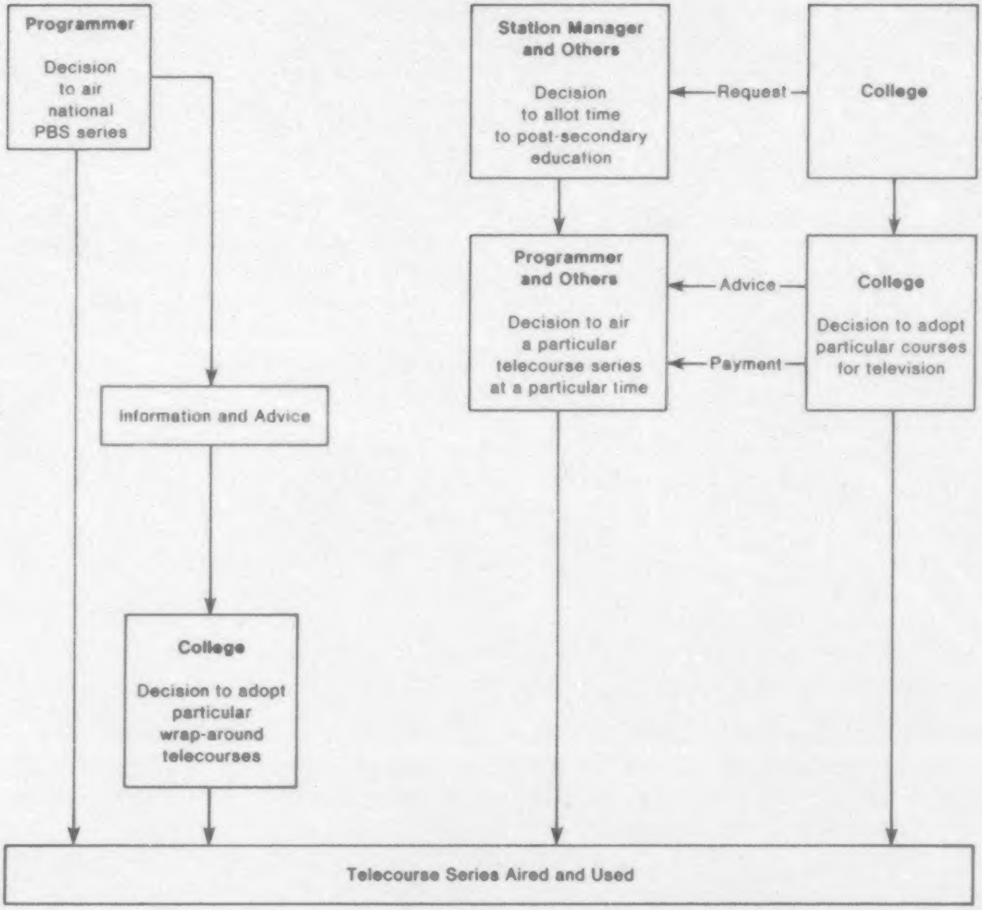
Programmer
Decision to air national PBS series
Station Manager and Others
Decision to allot time to post-secondary education
Request
College
Programmer and Others
Decision to air a particular telecourse series at a particular time
Advice
Payment
College
Decision to adopt particular courses for television
Information and Advice
College
Decision to adopt particular wrap-around telecourses
Telecourse Series Aired and Used

Figure 1. Telecourse adoption—programs.

- Who will be responsible for handling this area? What percentage of time?
  Programmer?
  ITV person?
  No one in particular?
  Other?
- Will we participate in the selection of telecourses beyond requiring minimum standards of technical quality?

Additionally, the following questions may, but do not always, arise:

- Who will provide publicity? How much and what kind? How will we decide where what responsibilities lie?
- Will we join/form a consortium of colleges?

- Will we provide other services (e.g., tape duplication, production) for post-secondary education? Will we charge for them? And if so, how much?
- What kind of lead time do we and the colleges need for each telecourse? What would be a mutually satisfactory timeline for the group?

Colleges

In the colleges there are actually two adoption procedures for telecourses. The first is the initial decision to offer this form of instruction; the second is the decision to offer a particular telecourse.

Somebody once said that decision making was an amorphous series of events, not a conscious act occurring at a specific point in time. This may be true of most decisions in educational institutions; it certainly seems to be true of the decision to offer a college's first telecourse. Few respondents were able to identify a point at which *the* decision was made. Like Topsy, telecourse use "just growed." Nevertheless, there are a number of issues that have to be resolved at some point in the process.

Two general questions seemed to occur with some frequency: (1) Will television lower academic standards/shortchange the television student? (2) Will television reduce on-campus enrollments? In the institutions we surveyed, the answer to both these questions was, according to people we interviewed, "no." Those individuals' judgments were supported on the latter point by the articles and reports we have reviewed, but the former is still being debated: Many of the objections to telecourses are based on ideals of what learning can or should be,[1] others may pertain to the role of the telecourse instructor.

Another question that was raised by most institutions at this point concerned costs and returns from telecourses. Few institutions appeared to have examined them with any rigor (and as we indicate in the next section, it is an area in which experience has not provided all users with satisfactory answers) but we perceived a need to feel there would be a positive return on telecourse expenditures before those expenditures could be authorized.

More specifically, the following questions arose and were settled, whether with conscious intent or not, as telecourses were adopted and implemented:

- What will the administrative relationship of telecourses be to the rest of the institution? (That is, will they be administered by the appropriate department, an open-learning division, an evening college, a Continuing Education or Extension division, or in another manner?)
- Will there be a single person responsible for telecourse administration? If so, who/how many courses/how will we assign a load?
- What kinds of support will be furnished telecourse students and who will be responsible for it?
- How will the faculty member for a telecourse be chosen/compensated/evaluated?

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1. A professor at a small liberal arts college that did not use telecourses summarized some of the many reasons he felt his institution would not adopt one, although he intended to assign his students some programs on an upcoming series. His was a largely residential college that felt the interaction of students among themselves and with their faculty was important. It had an excellent faculty, many with national reputations, which was committed to teaching and to whom the idea of distancing themselves from either the course materials or students was inimical. The ideal class to most was a seminar in which learning went forward, not a class in which teaching occurred; and the classes were, for the most part, very small. Unfortunately, this kind of educational environment is not available to, nor may it be suited to, all students.

- Telecourse credits: Will they be applicable toward a degree? If so, will there be a limit on the number of telecourse credits applicable to the degree? Will there be (does the state require) a formula for computing credits for telecourses?
- Finances: How much will the student be charged for telecourses? Can the institution be reimbursed by the state for telecourses? Under what conditions?
- Students: Do students have to matriculate to take a telecourse? Must they be full time/part time? Will telecourses be identified as such on their records? What campus facilities will be open to them?
- Registration procedures: Will these be comparable to on-campus? Must the student come to campus? Register by mail? Register by phone?

Once these have been resolved, the institution is ready to consider adopting a particular telecourse.

Questions a Station Manager Might Raise about Telecourses in General

How do telecourses relate to my station's mission and goals?
Are there other more effective ways to do the same thing?
Can this use of air time be justified in terms of service to a significant portion of my community?
Will telecourses improve or detract from the image of my station and the quality of programs it broadcasts?
Will airing telecourses gain/lose me support from my sources of funding?
    State Legislature
    The (college, school district) institution to which I am licensed
    Underwriters in the community
    Individual members
Will I receive economic or political support from the colleges in return for my involvement in telecourses?
Will telecourses be a drain on staff time or station funds?
How do we determine "success" in telecourses and what will my station need to do to ensure it?
Will telecourses help my station as we move into the future?

Questions a Director of Programming Might Raise about a Particular Telecourse

How does this telecourse fit the programming mission of my station?
Who is the intended audience?
Is this audience being served elsewhere?
Will the telecourse draw nonenrolled viewers?
How does it articulate with the rest of my programming schedule, both in content and operationally?
Do I know the commitment of educational institutions in the area to supporting this telecourse?
Are the programs in the telecourse of good quality, both technically and in production values?
Would using this series free resources to use on other programming?
What other options do I have for that slot that would attract an equal number of viewers in light of my total situation in a multi-station market?

Once the initial screening decision has been done, the telecourse enters the normal institutional adoption process. The flow chart in Figure 2 is representative of such a process, although it may, of course, vary from institution to institution.

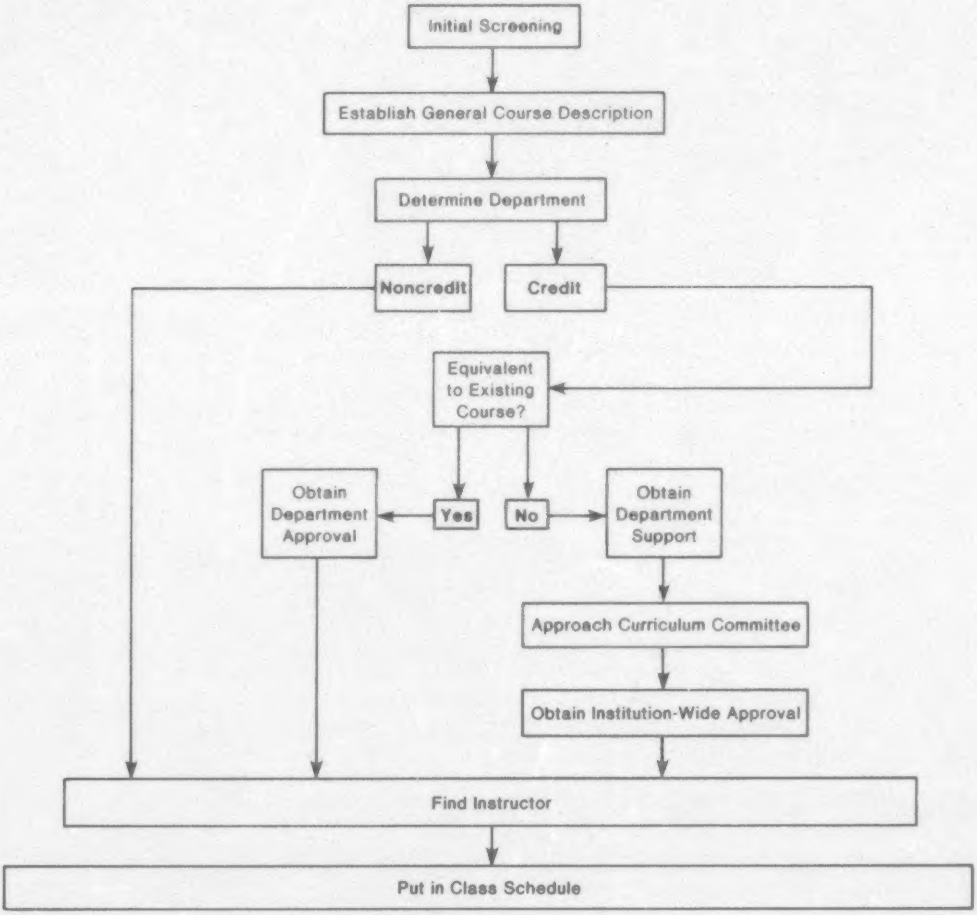
Initial Screening
Establish General Course Description
Determine Department
Noncredit
Credit
Equivalent to Existing Course?
Obtain Department Approval
Yes
No
Obtain Department Support
Approach Curriculum Committee
Obtain Institution-Wide Approval
Find Instructor
Put in Class Schedule

Figure 2. College telecourse adoption flowchart.

Several points in the process affect the length of time needed to reach a decision. Generally, the left path is the shortest and the right the longest, with the middle path, as might be predicted, somewhere in between. If a course has to be approved by a curriculum committee, the process can take a year or more. If not, two to three months was thought adequate by a number of respondents.

Both our data and the experience of telecourse producers has shown that the amount of time available in which to make decisions about telecourses, particularly wrap-around courses, has been a problem for many institutions. A number of creative ways have been and will probably continue to be used to shorten the adoption process in order to meet the rather inflexible deadlines imposed by set broadcast schedules. These include: finding a general number in a catalog—for example, "Special Studies In . . ."—into which a telecourse would fit; enlisting the support of a President or Dean of Instruction for rush approval; finding an instructor who would act as an advocate for a telecourse at the beginning of the process; putting all potential telecourses into an adoption process early on, whether the institution intended to use them or not. None of these, however, adequately answers the problems imposed by uncertain broadcast schedules, particularly as the adoption process is not the only preparation needed for a telecourse. Many institutions have found, for instance, that their class schedules are an excellent means of publicizing telecourses and inclusion in a class schedule requires from two to six months advance preparation. This is a period of time that must be added to the adoption time when working back from the beginning of a television-based "class."

At this point programmers and station personnel become important. In those cases where colleges initiate the airing of a telecourse, timeline problems can be solved through good communications. In those cases where broadcast commitments to a series are made primarily by the station, the colleges are dependent on the station for timely decisions.

These decisions are actually two, one of which should not be too difficult to adapt to college needs. The other may be thorny.

First, an educational institution needs to know if a television course will be offered during the course of a semester or quarter in time to make a decision about it. Second, if complete information is to be given a student (who is planning a complex schedule), the dates and times of the programs need to be supplied, either through the class schedules or by some other means.

The PBS Adult Learning Task Force[2] recommended that PBS make a commitment to schedule the beginning of a series to a certain week at least seven months in advance. For most institutions this would allow ample course adoption time. The report, however, further suggests that "A commitment to a specific day of the week and time of the day schedule should be made at least ten (10) weeks prior to the first broadcast. . . ." This may be too late to include the course in many class schedules. And there may be programmers who, preferring to retain as much flexibility in planning their schedules as possible, will resist scheduling even ten weeks in advance.

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[2] Public Broadcasting Service, Adult Learning Task Force. Adult Learning Systems: A Report to the Public Broadcasting Service from the Adult Learning Task Force. Washington, D.C.: Public Broadcasting Service, April, 1979.

Article 21

"Role of the Faculty in Mass Media Courses"

by
Hyman H. Field

In 1969, at the American Association of Junior Colleges' Program for Developing Institutions conference entitled "Strategy for Change in the Junior College," Gabriel Ofiesh made the following statement:

> The time is soon coming when any school system which does not have individualized instruction using electronic media will die on the vine. Junior colleges should be completely committed to individualized learning. The new colleges should have 30 percent of their students off-campus.[1]

This commitment to individualized, off-campus learning in community and junior colleges has not yet reached the proportions called for by Dr. Ofiesh. However, the movement in this direction is rapidly gaining momentum. More than 350 colleges offered a course based on the nationally televised series, "The Ascent of Man." The interest from colleges for the survey of religions course based on the television series, "The Long Search," is nearly five times that great.

The shift to mass-mediated courses which serve off-campus students as well as campus-based classes makes new demands on faculty members. The instruction must be designed so that the material received by the students enables the individual student to successfully progress through the course. This often is a team effort involving course designers at the national and/or local level, content specialists and production personnel as well as the faculty. The faculty member is no longer the major presenter of content, and he or she is no longer able to enter a classroom, close the door and perform for only the eyes of a class. In short, the role of the faculty member in mass-mediated instruction, while still vitally important, must be redefined.

Many faculty in our colleges today have been, and still are, hesitant to participate in mass media courses. Many, in fact, still look upon mass media courses as a threat to their jobs and to their professional standing. One of the many reasons for this lack of enthusiasm stems from a lack of understanding of the role the faculty member plays in mass media. A typical comment from a teacher was cited by Robert G. Simerly in his study of faculty development.

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From Hyman H. Field, "Role of the Faculty in Mass Media Courses," Using Mass Media for Learning, Edited by Roger Yarrington, pp. 63-68, American Association of Community and Junior Colleges, 1979. Used by permission of the publisher.

[1] Ofiesh, Gabriel. "New Horizons: The Challenge of the New Educational Technology." *Strategies for Change in the Junior College.* Selected Proceedings of the Second National Conference of the Program for Developing Institutions, U.S. Department of Health, Education and Welfare, Office of Education and the American Association of Junior Colleges, Vincennes, Indiana, 15–18 June 1969, Publication No. 8, Sept. 1969, p. 45.

> The minute the university starts trying to plan things for me, that's the day when they can get themselves another professor. I'm not having any organization or any member of an organization telling me what I can or cannot do in the classroom or anywhere else. That's how the university historically has gained its strength—by not allowing the organization to dictate to its faculty members.[2]

However, as Dr. Ofiesh astutely points out: "Academic freedom is too often a euphemism for sloppy pedagogy."[3]

The team approach in the design and delivery of mass-mediated instruction takes into account two basic principles in teaching.

1. One cannot teach what one does not know.
2. One may know, and yet be unable to teach.[4]

In many institutions of higher education, the second of these principles is often ignored. Even worse, the contrary—if a person knows his subject he can teach it—is often the principle upon which an institution operates. There obviously is little logic to this position. The team approach identifies specialists in the areas of content (often the faculty member), instructional design, production of mediated material, and administration of instructional delivery systems. These specialists are given responsibilities in their areas of expertise and jointly develop a course substantially stronger than any person could produce alone.

The faculty, who have the reputation of being the people most resistant to change, must be willing to participate in this team effort and use their particular expertise to the best advantage. As Mayrelee Newman points out: "To challenge and experiment, professional staff must be willing to re-examine hallowed procedures, and where they seem nonessential, be willing to cast them out."[5]

To participate as part of this team allows the faculty to function on a higher professional level.

> In my mind, what we have been talking about when discussing change through technology is setting the teacher free—raising the teacher role to an even higher mark of dignity and distinction, i.e., involving him in a process that will draw on all his human resources—cultural, intellectual and temperamental.
>
> We've been talking about a greater emphasis on student learning and lesser emphasis on teacher teaching.[6]

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2. Simerly, Robert G. "Faculty Development in Higher Education: From Myths to Research Findings." Paper presented at the Annual Forum of the Association of Institutional Research, April 1975.

3. Ofiesh, *op. cit.*, p. 45.

4. Seidlin, Joseph. "Faculty Innovation: The Teaching Consultant." *Strategies for Change in the Junior College.* Selected Proceedings of the Second National Conference of the Program for Developing Institutions, U.S. Department of Health, Education and Welfare, Office of Education and the American Association of Junior Colleges, Vincennes, Indiana, 15–18 June 1969, Publication No. 8, Sept. 1969, p. 25.

5. Newman, Mayrelee. "Catalysts For Change in Learning Resource Support." *Strategies for Change in the Junior College.* Selected Proceedings of the Second National Conference of the Program for Developing Institutions, U.S. Department of Health, Education and Welfare, Office of Education and the American Association of Junior Colleges, Vincennes, Indiana, 15–18 June 1969, Publication No. 8, Sept. 1969, p. 40.

6. Lahti, Robert E. "Education for Whom?" *Strategies for Change in the Junior College.* Selected Proceedings of the Second National Conference of the Program for Developing Institutions, U.S. Department of Health, Education and Welfare, Office of Education and the American Association of Junior Colleges, Vincennes, Indiana, 15–18 June 1969, Publication No. 8, Sept. 1969, pp. 73–74.

While the specific role of the faculty will vary from institution to institution and from course to course, there are certain responsibilities and tasks that are generic to all mass media courses.

It should be pointed out that the faculty role is that of a faculty engaged in the adoption and delivery of a course which has been produced by another institution or agency. While many of the same tasks and responsibilities are involved in both the development and the adoption of a mass media course, there is an essential difference in both the character and degree of faculty participation. Since most colleges will be adopting material produced elsewhere, that will be the emphasis in this chapter. Also, the author assumes that most of the readers have a basic understanding of the course development process and the resultant high instructional quality which is inherent in most mass media courses.

Administrator Responsibilities

To be most productive, faculty participation should begin at the very outset of a television-related project. The faculty member should be involved in the decision to use the television material, in the modification of that material, and in the delivery and evaluation of the material. It is up to the administrator to see that this involvement occurs.

One of the most important responsibilities for the administrator is the selection of the appropriate faculty member to serve in these various capacities. Certainly, the faculty member should be competent in the content area which is being taught in the television course. But beyond this competency there are two other characteristics which the person should possess and for which the administrator should look. The faculty member who will be working with the television course should have a basic understanding and sympathy for this particular delivery system. He should realize the capabilities and limitations of the television medium and he should feel that television is appropriate for the presentation of the course.

Ideally, the person selected should be an experienced teacher. This faculty member should have taught in the classroom and understand the nature of students, particularly students in the course discipline. He or she should be able to anticipate the questions, the problems, and the other points in a course where student/faculty interaction may be required. The ability to identify these critical points within a course can only come from experience in the classroom, but it is a critical element in making the telecourse a successful experience for the students who enroll.

The administrator should make it a point early in the process to fully inform the faculty member of the nature of the task or role in which he will be asked to perform. As stated earlier, this role will vary from institution to institution and from course to course; but whatever the role, the faculty members should have a clear understanding of what is expected of them. Faculty members should know exactly what they are expected to do in the development of the course, in the delivery of the course, and who has the specific responsibility for each element. By making this role definition explicit at the outset, many future problems of territoriality or false expectancy can be avoided.

The administrator must also take measures to cut the red tape which often exists at various institutions and may hinder the use of televised instruction. A very important part of this process is that of determining the appropriate student load for a televised course. This load may be greater or smaller than the load for the equivalent taught at a regular campus-based section. The number of students which a faculty member can be expected to deal with in a television course depends on the type of work the faculty member will be expected to do. For instance, if he or she must conduct a number of seminars at various locations, read and grade a large number of essay exams for each student, and read and grade themes and other types of written work, then the student load may be quite low. On the other hand, if the faculty member's assignment is primarily that of contacting students who are having problems within the course, answering questions which students may have, and grading objective tests, the student load may be much larger. A technique which seems to work in assigning student load is to determine, with the faculty member, what the tasks will be and how many students can be handled within the work time equivalent to one credit hour. The total number of students enrolled in the course can then be divided by this number to decide the appropriate credit assignment for the faculty member.

Often television courses, particularly those scheduled and broadcast by public broadcasting stations without input from the colleges, fall outside the normal quarter or semester. The administrator must therefore make arrangements to have the faculty assignment which coincides with the television broadcast. This assignment may begin in one term and continue through one or more additional terms, depending on the length of the television broadcast. This can be accomplished in a number of ways, ranging from assigning the faculty member a large number of credits at the outset (to cover his work in subsequent quarters) and to assigning partial credit in each quarter. Whatever method is used, however, it is important that a faculty member be involved in the course from beginning to end, including those times when a television course may be broadcast between terms or over breaks.

Lastly, the administrator must be sure to provide the faculty members with the type of support which will make it possible for them to devote their efforts to the instructional aspects of the television course. An important aspect of this support is that of adequate clerical assistance. The most atypical the course or the delivery of the course, the more complicated administration becomes. Clerks should be assigned as many of the administrative responsibilities as possible. They should receive and log in student work. They should respond to administrative questions such as: where to submit work, how to make up for a missed telecast. They should be able to mark objective tests. They should record student grades and return work to students. And they should send out student assignments. In short, let the faculty member concentrate on the instruction—let the clerk concentrate on the administrative details.

The administrator should provide an office with a telephone and duplication services. The primary contact between a faculty member and television students is often the telephone or the mails. Therefore, these media must be made available on a continuing basis. Faculty must be able to duplicate assignment and supplemental material to send them to the students since this is one of the primary means of supporting the students in their course work.

Development Stage

It is at the development stage of a course that the role of the faculty member or the division of labor in the development varies greatly from institution to institution. In some institutions, the faculty member will be responsible for only the content of the course. Another professional, such as an instructional technologist or an instructional designer, will be responsible for the teaching strategies and delivery techniques to be used in the course. In other institutions, the faculty member alone has the entire responsibility for the development and delivery of a course. The latter circumstance is much less desirable because the advantages of the team approach are lost.

The following tasks must be accomplished in the development of a television course whether they are done by a faculty member or by a faculty member and an instructional technologist team:

1. The course must be approved and officially listed in the college curriculum. Most television courses will fit some existing course description. This must be determined by each institution using the course. If the course does fit a description, it can be offered as that particular course. However, in some cases, a new course must be approved. Usually this entails a course description and a listing of course objectives, which have to be approved by a curriculum committee at a college. This sometimes is a time-consuming endeavor and is impossible to do before a nationally-telecast series begins. Therefore, a third alternative, though one which is not as desirable, can be used. The course can be listed in a "catch all" category such as Seminar & Project or Individual Study. This should be used as the last alternative since it does not give the student an accurate description of the course and does not give a fair indication of what the student has done when it is placed on a transcript.

2. The course objectives must match college objectives. The faculty member must carefully compare the objectives of the television course with the objectives of the same course that is taught at the college. If these objectives are identical, then the television course can be used without modification.

Most likely, however, there will be some variance between the two sets of objectives. If the objectives are essentially the same, but are in different sequences, there will probably be little problem in using the telecourse. The only problem that might occur in this instance is when the television course covers more than one term. For instance, a course in English literature may be a two-semester course. If the sequence of the objectives in the television course places some objectives in the first term which are normally in the second term, it may be necessary to re-sequence the course so that students will be able to transfer between courses at the semester break.

The problem which most often occurs is that one or more objectives at the regular course may be missing from the TV version. If this happens, the faculty member will be responsible for designing auxiliary material in order to cover the missing areas. Sometimes other available production material may fill the gap, but more often the missing ingredients will have to be freshly designed and produced. This need not be additional television material, but could be print, audio cassettes or seminars. In this same vein, there may be material in the television course which goes beyond the objectives of the course at a particular college. In this case, the faculty member must determine what and how material is to be omitted.

3. Student requirements must be designed. The faculty member must determine the number of tests to be given during the course and must determine the types of tests which are to be used. The types of other required work, such as essays, reports, and seminars, must be decided upon and designed. Supplemental work which might be used for extra credit should be designed. This could include additional reading, research papers, seminars, field trips and special projects. The faculty should also determine what the grade requirements are for the course and whether students will be able to contract for different grades or if the same requirements are exacted for every student in the course.

4. The specific delivery of the course must be designed. A television course, for instance, may be offered by broadcast and/or by placing cassettes in learning resources centers and other community centers. The delivery method which is most appropriate for a given institution must be determined. How testing is conducted must be ascertained. Will the testing be proctored at a given location, or can the testing be taken at an off-site location? Will seminars or other gatherings occur on a campus or will they occur in various community locations?

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Another very important aspect of the delivery of a television course is the schedule for submission of assignments. One faculty member may be serving a large number of students. Therefore, assignments should be spaced throughout the television course so that they are not received at one time. In this process the type of assignment should be taken into consideration so that all essay type test or term papers are not grouped at one point. This has sometimes been a problem in television courses. A faculty member has assigned objective tests for the mid-term or unit tests but then has given the students essay questions on a final exam as well as requiring a final term paper. As can be seen, the work load at the end of the television course is going to be quite large. To prevent this, assignments should be scheduled so that the work load is spread throughout the entire course. When designing the delivery of the course, the faculty member should also take time to design prescriptions for students who have missed questions or assignments. When students turn in incorrect work, some provisions should be made to get feedback to them. Ideally, this feedback should not only tell students they are incorrect, but should also give them direction as to how they can learn the correct information. In a classroom setting, this often happens in the discussions which occur after tests or papers are turned in. In a television course this has to be sent to the students in writing and it is most easily designed before the course begins.

5. The management of the course must be designed. The faculty member should establish a certain number of hours during which the students may call or arrange conferences. The faculty person should also have hours set aside during which he can contact students who may not be able to call or come in during the scheduled office hours. These hours should be flexible to accommodate the needs of the many different students who may be enrolled in the course.

The assignment of responsibilities for the course between the course clerk and the faculty member should be carefully specified at this point. As stated earlier, the course clerk should handle as many other administrative details as possible. However, in some courses faculty members may wish to handle some of these items themselves.

6. A method must be designed to inform the students of all the requirements. In a telecourse, the packet of material sent to the student following enrollment may be the initial contact for the student with the faculty. Therefore, this material must tell the student *everything*. It should include such items as a letter introducing the faculty member to the student, a list of course objectives, general directions to the student for participation in the course, specific course requirements, specific dates when material is to be submitted, information to a student about how to withdraw, study questions for examinations, a list of books and other materials which will be required for the course, information about where the books may be purchased, information on grading, information about how to contact the faculty member, and information about when and where to take examinations. When *everything* has been included in this material, the students will still have a number of questions. Therefore, the faculty member must be sure the material designates whom to call for specific information.

During the Course

The faculty member's role in a television course is quite different from that in a classroom setting. This is more evident during the delivery of the course than in the development of the course. One of the most obvious differences is that the faculty member is now dealing with students at a distance. Student-faculty contact is most often by telephone or by mail. Seldom does the faculty member see a student face to face, and when he does, it is usually on an individual basis.

The faculty member in a television course seems to be called upon more often to justify the materials. Students tend to contact the instructor more often to inquire about answers which are given for particular tests. Similarly, if students are to receive a prescriptive diagnosis for their responses during the course, the faculty member must prepare analyses for wrong answers as well as for right answers. These analyses must not simply state that the answer is incorrect but why it is incorrect and why another answer would have been more appropriate.

Another major characteristic of a television faculty member's role is that it is a much more public role than that of a classroom instructor. Not only is the material available for all of the students who are enrolled in the course, they are also more easily accessible to the general public. More importantly, the material prepared by the faculty members for television courses is available to their peers. Consequently, the work the faculty does is more often analyzed and criticized by fellow faculty members than would occur in the case of a classroom instructor. They cannot operate behind closed doors. From a positive standpoint, the prospect of public scrutiny often results in designed and produced courses. However, television faculty members must be confident of their abilities and of the material which they produce, and they must not be afraid to undergo the inspection by their peers.

During the offering of a telecourse the faculty member has some very specific tasks which must be accomplished. Every student who enrolls in the course must be tracked. The faculty must know which students are progressing well and which ones are having problems and which ones are not doing any work at all. The faculty must be able to identify students who have problems and provide them with the type of help that will help them succeed in the course. The faculty member should also contact students who are not keeping pace and find out what the problems are and give the students appropriate help.

This aspect of a faculty member's job is not one to be taken lightly. Since the feedback given to a student is on an individual basis, the faculty member may have different feedback for each student. In cases where students are in a self-paced system (such as cases where television courses are placed in LRC's), the students may not only need individual feedback but feedback based on their particular progress in the course. The faculty member, therefore, is called upon to respond to individual students who have just begun a course as well as to students who are well into a course and may be preparing for their final examination.

During the course, the faculty member should evaluate all of the course components and be prepared to make necessary revisions if the course is to be offered again. In some television courses, the faculty member will see the telecasts for the first time at the same time the students see them. Therefore, some of the material which has been prepared may not be adequate for a particular telecast or may have a different emphasis. It is during the initial offering of the course that the faculty member can identify these problem areas and prepare revisions to rectify these problems the next time the course is offered.

Of course, the faculty member will also be called upon to conduct seminars, field trips, or any other special sessions which are designed into the course. If the faculty member is handling a large number of students in the course, he or she may have to conduct the seminars and workshops a number of times and possibly in a number of locations.

Summary

In summary, the role of the faculty member in a mass media course is a vital role. But it is quite different from that of the classroom teacher. It is not a role with which all faculty will feel comfortable but one which can be challenging and exciting for a creative teacher.

The faculty member in a mass media course is no longer the principal presenter of information. The teacher's role can, perhaps, better be described as that of a manager of instruction. The faculty member must insure that everything is included in the course. He/she must insure that everything is accurate and that everything is in the proper sequence. He/she must make decisions for remedial and supplemental work on the basis of individual student needs. And even though the faculty member is not the principal presenter of the content, he/she is still looked upon as a final authority for content, completeness, and accuracy.

The faculty member in a television course now has the opportunity to deal with every student as an individual rather than dealing with a group. This can be either a positive or negative factor in a learning situation.

Article 22

"Communicating with Distant Learners"

by
J. Terence Kelly and Kamala Anandam

Education is essentially a process of communication. In classroom-bound learning arrangements, the lecture-discussion method has prevailed, utilizing the dynamics of interpersonal and interactive communication. This chapter, in contrast, will focus on communication from the perspective of a distant learner for whom time and space for learning are extended. Emerging forms of technology will be presented to emphasize their potential for improving the effectiveness of learning at a distance.

Communication has been a function of human life from the earliest known civilization to the present. Language, oral and written, has served as the prime facilitator in information sharing, despite the advent of new means of communication. Although the forms of communication have varied with time, their purpose of transmitting and receiving thoughts and feelings has not changed. Distant communication is, likewise, as old as the human race. Primitive ways of reaching people at a distance included the use of drums, fire, message sticks, smoke signals, petroglyphs and hieroglyphics. These were followed by the printed word. No single technology so revolutionized the art of distant communication as did the printing press. In more modern times, the invention of the telegraph, the telephone, the radio, the motion picture film, and television have advanced long-distance communication immensely. Current technology points to such distant communicators as international orbiting satellites, interterrestrial communicating feedback systems, and sophisticated worldwide computer networks.

The cultural trends in communications are also reflected in institutions of higher education whereby the custom of assembling at a given place and time no longer constitutes the monopoly on arrangements for learning. In this country, television is accessible in almost every home, school, and public place. Consequently, reaching the masses via this medium is not a problem. The challenge lies in effective use of mass media by educators.[1] As a response to this challenge, programs under the banner of open learning, extended education, distant learning, and outreach instruction are gaining momentum in colleges and universities.

Traditions and conventions that permeate educational institutions have generated a myth among many persons that learning at a distance cannot be effective. Evidence indicates that learning can be effective, regardless of the mode. Pertinent to this issue are the conclusions from a novel

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[1] Helmantoler, Michael C. "The Non-Traditional College Student and Public TV." *Community and Junior College Journal* 48: 13–15: March 1978.

investigation of the relationship between achievement and instructional arrangements. This study summarizes comparable data from 91 investigations in the areas of: accounting, algebra, American government, biology, chemistry, child development, education, engineering, English composition, history, mathematics, physiology, psychology, quadratic equations, general science, natural science, physical science, speech, and statistics. Comparisons were made among the following instructional conditions: lecture, discussion, several arrangements of lecture-discussion meetings, supervised and unsupervised independent study, television, and programmed materials. Analyzing the data, the authors concluded that the results "demonstrate clearly and unequivocally that there is no measurable difference among truly distinctive methods of college instruction when evaluated by student performance on final examinations."[2] More research will be discussed later in the chapter, but suffice it to say now that it is possible to learn equally well from a distance as it is in a face-to-face situation.

One of the reasons for the growing popularity of external learning programs is that the previous dilemmas associated with distant communication are beginning to dissipate. At the heart of the problem has been the difficulty of determining whether there has been a receiver and a sender of the same message. The perplexity of this basic problem becomes rather critical for behavioral changes which are the goals of education. For any particular activity to be incorporated into the behavioral patterns of an individual, it must be internalized and interpreted as meaningful and relevant by that individual.

In face-to-face situations, messages can be decoded, corrected, and understood more readily than in situations where people are separated by time and distance. In communicating at a distance, the sender hardly knows whether the message is being received. The opportunities for a sender to receive feedback have been limited when mass media—newspaper, radio, and television—are utilized. Letters to the editor, public opinion polls, program ratings and the like have helped in a limited way to obtain the pulse of the reading, listening, or viewing audience.

In the case of external learning programs, can the sender (the teacher) assume that the instructional message is being received by the distant student? Can the teacher assume that the desired behavior will be exhibited? Without *feedback* from students, the teacher can only resort to speculations. It is possible to obtain *feedback* with more sophisticated forms of technology, sometimes instantaneously, despite the distance. The more immediate and comprehensive the *feedback*, the better the chances are for necessary adjustments.

A cursory glance at what is currently occurring in homes, restaurants, hotels, department stores, banks, and grocery stores demonstrates the place of technological innovations in automating and facilitating our communications and transactions. The reliance on the computer for production and management activities in industrial and commercial firms is established, and its widespread use by consumers in their homes is on the horizon. User feedback is likely to become the most crucial factor in decision-making in politics, government, industries, banking, and marketing. Education is not barred (although one would think it is) from the use of these dramatic advances in communication technology. Unfortunately, education is lagging behind in its willingness to take advantage of these possibilities.

If, in their preoccupation with day-to-day responsibilities, educators have failed to recognize the pervasive impact of the technological revolution, they should now take the time to examine reports which will help them visualize the way of life in the coming years. "Time projection," as some psychologists call this activity, is not a luxury but a necessity in educational planning, par-

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2. Milton, Ohmer. *Alternatives of the Traditional*. San Francisco: Jossey-Bass Inc., Publishers, 1972. 156 pp.

ticularly for distant learning, since it relies on mass media. The article, "The Age of Miracle Chips," offers a vivid panoramic view of the future. Shopping by computer TV, participatory television viewing, computer-run appliances, and living without handling money are but a few illustrations. The argument that the computer is dehumanizing can hardly be defended in light of microtechnology that can bring custom-made products within everyone's reach by the push of a button. As stated in the article:

> To ask what the applications are is like asking what are the applications of electricity. Certainly, the miracle chip will affect American life in ways both benign and productive. Far from George Orwell's gloomy vision of nineteen eighty-four, the computer revolution is stimulating intellects, liberating limbs, and propelling mankind to a higher order of existence.[3]

In light of this imminent technological revolution, why could not educational programs be tailored to fit the uniqueness of individuals? Those educators blessed with vision are deliberately working to modify their institutions' structures and learning environments to make the most effective use of these new technological innovations for instruction. In a modern technological society, it is most appropriate that education be technologically organized for its teaching mission.

A variety of technologies is available for communication. Each of the media has developed a quality and a character of its own. *Flexibility* and *selectivity* are the cornerstones for building a media-based instructional program for distant learners. *Flexibility* provides various avenues for learning. The audience for distant learning is as heterogeneous as the nation's people; their prior learning and expectations vary as do their characteristics. What one can learn from an audio cassette, another might learn equally well, if not better, from print materials. Although group-based delivery systems generally do not cater to the individual student's needs, programs for distant learning have the potential to meet these learning preferences by virtue of the use of multimedia adaptations.

If distant learning programs are not designed in terms of the needs of the individual student and the circumstances in which that learner happens to be, they are likely to witness the "rise and fall" phenomenon inherent in a fad. Certainly, the use of mass media, such as open circuit television and radio, are not new to higher education. What is significant is the present emphasis on: providing a rigorous academic process for course development; exploiting the media for its optimum value; and designing communication systems to support students on an individualized basis. It is not accidental, then, that the number of students enrolling in open learning courses across the country, indeed the world, is steadily increasing. In a survey conducted by the University of Mid-America (UMA), it was found that 11 institutions offering television courses reached a total potential adult audience of 22 million in 1975, of which 22,000 enrolled in television courses. In other words, one out of every 1000 adults in the community enrolled in television courses; in some instances it was one out of every 260.[4] The necessity for flexibility when dealing with such numbers can hardly be overstated.

Each medium has its strengths and weaknesses. From the learner's perspectives, the media can arouse their emotional involvement, pace their efforts, transmit information, highlight significant ideas, illustrate abstract concepts, clarify complex themes, stimulate thinking, and provide feedback. *Selectivity*, then, means the selection of a purpose and the selection of the medium to match the purpose.

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3. "The Age of Miracle Chips." *Time*, February 20, 1978, pp. 44–59.

4. Wall, Milan, and Brown, Lawrence. "Report of the University of Mid-America Office of Marketing and Information Survey of Institutions Offering Television Courses." Lincoln: University of Mid-America, 1978. 20 pp. (Unpublished).

The way of life in the technological world of tomorrow dictates that external, media-based learning should be pursued as a viable alternative for instruction. There is sufficient research evidence to demonstrate that distant learning can be an efficient means to gain new knowledge. Thus, there is ample justification for continuing this mode of instruction in its present form as well as for experimenting with newer methods.

Communication Methods in Distant Learning

In this section, communication in distant learning will be discussed from two perspectives: transmitting information and maintaining two-way communication. Much of what will be said has for its source the experiences of several community colleges and universities in the United States and the Open University in Great Britain.

For transmitting information, the invention of the printing press is yet to be surpassed in its dramatic impact in linking the world's people together. Distant learning programs rely heavily on print materials—as textbooks, anthologies, study guides, workbooks, newsletters, and newspapers. These materials, when used for on-campus classes, do not acquire the prominent status they do in the external learning mode. In the classroom, the instructor invariably becomes the prime transmitter of information. The enthusiasm of the instructor to convey the information and the eagerness of the student to receive it are presumed to be conducive to communication at a fixed time and place. More often than not, the instructor chooses the information to be transmitted. In contrast, most of the institutions engaged in the development of media-based courses have a design team consisting of instructional technologists, curriculum and learning specialists, editors, and faculty to develop educational materials. Thus, individual talents are brought together in a collaborative effort that can result in quality programs.

The team approach in producing the print materials for an open learning course sets the stage for the specialists in academic content and media teaching to come together to enhance the instructional process for the student. Not so obvious an advantage for any educational institution in this process is the built-in faculty training that inevitably occurs. All departments should engage in such collaborative efforts, even for oncampus courses. A cross section of almost any college faculty is at best a randomization of talent. Some are proficient in lecturing, some are skillful in planning and developing curriculum materials, and others are effective in working with individual students. But they are *all* assigned classes to teach. By engaging in cooperative planning and teaching, where the strengths of each professional's talent can be maximized and weaknesses minimized, the opportunities for better student learning and greater student satisfaction exist.

Curriculum materials developed for most open learning programs have broad utilization, more so than the hand-outs prepared by an individual faculty for a class. Statistics (as of 1976) show that the print materials prepared for the British Broadcasting Corporation's television series, "The Ascent of Man," were used by some 40,000 students in 420 institutions throughout the United States; approximately 275 institutions offered another college credit course based on a BBC production, "Classic Theatre," to 11,000 students; 15,000 students enrolling in 300 institutions took the American-produced course "Adams Chronicles."[5] The fact that the print materials developed at one institution reach students across the nation suggests that the print materials must be comprehensive, complete, and precise in their presentations. Collectively, quality print

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5. Chamberlain, Martin, N. "Access to Broadcast Courses for Credit." *The Third National Conference on Open Learning and Nontraditional Study*. Lincoln: University of Mid-America, June 1976, pp. 181–182.

materials can be produced given appropriate expertise in learning, design, writing, and content. The economic feasibility of teamwork and the shifts in faculty role are discussed in other chapters.

Television is another medium for transmitting information and, undoubtedly, the most visible component in an open learning course. Institutions are likely to be attracted to an external course, if it is accompanied by a television component. The video portion of the courses tends to be more appealing to the students as well. As a powerful tool in communication, television is unmatched—the color, the action, the setting and the script bring alive the ideas and concepts to the students. Television programs like "Sesame Street" that have cogent story lines, entertaining features, animation, and motion have proven the didactic capability of television for young children. The same holds true for adult students. The challenge to capitalize on the unique character of television rests with the creative minds at institutions of higher learning.

Radio, as a medium, has been underused for instructional purposes for external programs. It has many advantages, not the least of which is the cost in comparison to television production. In addition to open circuit radio, many closed circuit systems or sub-systems are available, and the audio cassette player is almost a universally owned gadget in the home, office, or car. Dramatic and emotionally packed radio series can be produced, and some community colleges and universities have used radio-based courses with positive results.[6] With the advent of National Public Radio we are witnessing a resurgence of the potential for the effective use of radio as an educational medium. "American Issues Radio Forum" is an example of nationally aired radio programs for distant learners.[7] Radio and audio-based open learning courses have a great potential for serving distant learners because of their flexible delivery forms.

The telephone is used by a large majority of the institutions which are offering courses in remote mode as a means of maintaining two-way communication between instructor and students. Teleconferences, student/faculty initiated calls, answering services, and phone-in radio programs are some of the methods which utilize the telephone for this purpose. Faculty initiated calls have been used systematically and successfully in helping students understand the course content. Similar faculty action has demonstrated that the telephone can play an important role in student retention and performance.[8]

Teleconferences, in which there is an opportunity for interactive exchange of information among large groups of people, can greatly aid distant learning because instantaneous two-way communication becomes possible. STEP, the Satellite Tele Education Program, coordinated by the Distance Education Planning Group of the British Columbia Ministry of Education, has provided programs for the general public, students, forest workers, health professionals, librarians, and teachers. STEP is able to transmit live, interactive programs to remote sites across the provinces.[9] Roche Laboratories has completed its experimentation with teleconference with interactive capability to communicate with distant learners all across the country. One experiment involved 120 physicians from all parts of the United States.[10] Educational telephone networks at

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6. Daughtry, Jody. "A Flexible Approach to Off-Campus Instruction." *Community and Junior College Journal* 48: 37–39; March 1978. Robertson, E. James. "Who Is Doing What, Where, and How?" *The Third National Conference on Open Learning and Nontraditional Study*. Lincoln: University of Mid-America, June 1976. pp. 189–193.

7. Norwood, Frank W. "Communications Technologies: Means for Outreach." *The Third National Conference on Open Learning and Nontraditional Study*. Lincoln: University of Mid-America, June 1976, pp. 177–180.

8. Anandam, Kamala, and Fleckman, Bess. "Telephone Dialogue Intervention in Open Learning Instruction." *Journal of College Student Personnel* 18: 219–227; 1978.

9. TELECOMS. "Hermes' visits British Columbia." *TELECOMS 2:1;* Winter, 1978.

10. Ibid., p. 2.

the University of Wisconsin and Kansas State University are successfully providing educational programs in their respective states and have even combined their capabilities to coordinate a teleconference program for clergymen across the two states.[11]

CEN, the Cono Educational Network in Walker, Iowa, uses the telephone very effectively for instruction for grades nine through twelve in four schools. With this network, children have received instruction from specialists from as far away as Canada and Florida. It is claimed by the users of CEN that telephone instruction disciplines both teachers and students to be more attentive while listening and more precise in verbalization.[12] While the success and benefits of a teleconference as an effective and economical means for instruction await more definitive assessment, the clarity of crosstalk communication achieved in these teleconferences, with as many as 100 or more persons, holds great promise for distant learning in higher education.

In some institutions, on-campus live sessions with the instructor are offered to distant learners as an option. Face-to-face sessions usually focus on orientation and reviews. These are beneficial to the students who elect to come to the campus and reinforcing for faculty who welcome the face-to-face communication. By and large, attendance at these sessions has not been up to expectation. Considering the fact that students choose the remote mode of learning to avoid scheduled meetings, the poor attendance on campus is understandable.

The convenience of studying at home and at their own pace prompts numerous persons to enroll in open learning courses. However, procrastination is an evil monster that hardly spares anyone, and knows no barrier in terms of sex, race, and economic conditions. Procrastination is a part of human nature. The sooner this phenomenon is accepted, the better the chance is that we will develop mechanisms to help distant learners to overcome this syndrome. Weekly broadcasts of radio or television programs pace the students to some extent. Some mechanisms which can be used to elicit active student participation are writing assignments, quizzes, and exercises.

The weakest link in open learning programs is the vehicle to monitor student involvement and progress. Attempts have been made, and continue to be made, to use human tutors (a tradition-bound practice!) for this purpose. Human capacity can only cope with a small number of students who perform along the same time line as the tutor. The "event paced" instructional model that characterizes on-campus classroom instruction is a poor substitute, philosophically and managerially, in open learning programs. Reliance on computers for monitoring student learning and prescribing for deficiencies is inevitable.

The Open University in Great Britain, which created a network of tutors, is currently introducing an interactive computer system for learners. As long as the numbers are reasonably small and a computer terminal is accessible, the remote student can be expected to use this system for learning without being frustrated. It is premature to predict what the Open University's experimentation with the interactive computer system will reveal. It is conceivable that, with the rapid progress in computer sophistication, the distant learners can interact with computer systems from their own homes. Meanwhile, computerized instructional feedback systems like CAMOL in the United Kingdom, CADE in Europe, and TIPS and RSVP in the United States offer computer-based systems for individualizing instruction. Of these, RSVP has been successfully used for the last seven years in media-based courses offered by Miami-Dade Community College's Open College.[13]

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[11] Ibid., p. 4.

[12] Ibid., p. 5.

[13] Anandam, Kamala. "Annual Report of Open College." Miami: Miami-Dade Community College, October 1977. 56 pp. (Unpublished)

Delivery modes for instruction that render time and distance inconsequential for learning are laying the groundwork (not necessarily by intention) for what Ivan Illich calls "learning webs" in his provocative book *De-Schooling Society*.[14] Distant learners are getting together by telephone or in small groups to compare notes, to study, and at times, to grumble and groan about ill-conceived and poorly planned courses. This represents the peer group interaction which is a spin-off from distant learning programs. Peer group interactions are shown, by theory and research, to facilitate learning. Great Britain's Open University exploits this principle in its broadcasts by including some peer group discussions in the presence of an instructor.

What happens in the student initiated informal peer group discussions without an instructor? Some skeptics are quick to label the process a "pooling of ignorance." This might very well take place with some students. There is use and misuse of any tool or method. Peer group discussion is no exception. However, students' self-reports have revealed, time and again, that they discuss the course content with their peers and call their instructor for further clarification. This spontaneous assembling of distant learning students in peer clusters warrants greater scrutiny by educators for its appropriate place in instruction.

In planning for and promoting lifelong learning, Allen Tough's research is significant. Tough defined a learning project as a highly deliberate act with an intent to retain the knowledge or skill for at least two days. Under this definition, Tough found that the average person conducts 83 learning projects and spends about 800 hours per year toward learning. Based on his findings, Tough recommends that curricular activities should be changed toward self-development projects and that alternate systems for learning should be provided to increase the choices for students.[15] While Tough's recommendations are psychologically sound, it is not likely that they will be incorporated to any appreciable degree in tradition-bound, on-campus classes. On the other hand, planners for mass media instruction should take to heart ideas generated by scholars like Tough and Illich, and think of divergent ways to reach students, wherever they might be.

Considerations of economy, time, and money can unwittingly lead planners for distant learning to accept a linear model—sequential arrangement of units of information that has to be learned in that order and remembered for testing. The assessment of needs and the establishment of prerequisites for individual students as well as the provision of individualized instruction are virtually impossible in the context of term boundaries currently in operation and without the reliance on computers to handle the complexities of instructional management. RSVP (Response System with Variable Prescriptions), a computer system for individualizing instruction, which is in use at Miami-Dade Community College, Northern Virginia Community College, Lord Fairfax Community College, and the University of Hawaii, offers the computer capability to meet the needs of individual students as well as handle the managerial intricacies.

A number of prominent researchers and commentators on the American higher education scene have examined the RSVP system and have offered testimony to its potential for redesigning some of the traditional structures of higher education. As an illustration, Patricia K. Cross writes the following about the RSVP system:

> The Miami-Dade experience with the use of computers to manage individualization is pulling the rug out from under the defense of group instruction and semesters on grounds of fiscal and administrative necessity—which is not necessarily to deny that group instruction may have its own contributions to make to some forms of student learning. But the fact is that it is no longer

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[14] Illich, Ivan. *De-Schooling Society*. New York: Harper & Row Publishers, 1970. 116 pp.

[15] Postsecondary Education Resources, Inc. "Self-Directed Learning." *The PER Special Reports* 1: 1-4 October 1977.

necessary for economic or administrative reasons to organize education into semester-long courses taught to groups of students. We now have the freedom and the obligation to reassess the usefulness of our organization of education for its contribution to student learning.[16]

Effectiveness of Communication

What does research show about the effectiveness of communication with distant learners? In the fifties and sixties, high interest led to comparative studies between instruction with and without television. By and large, the conclusion from the studies was that the "average student is likely to learn about as much from a TV class as from ordinary classroom methods, in some cases he will learn more and in some less, but the *overall verdict has been, no significant difference*."[17] Chicago's TV College is well known for its pioneering leadership in firmly establishing a prominent role for television instruction. Its research, experimentally controlled and conducted by distinguished educators from across the country, clearly demonstrated that homeviewers tend to surpass the performance of their on-campus counterparts who are comparable in age and ability.[18]

In the seventies, comparing on-campus courses with television courses is no longer necessary. Students heretofore not reached by colleges or universities hail non-traditional instruction as long overdue.[19] Small wonder, student satisfaction is a consistent finding in research on television courses.[20] Students' acceptability is an undeniable ingredient in establishing television as a viable medium for instruction. The convenience of learning in their own homes is perhaps the underlying reason why students accept television courses quite readily. As an illustration, in a nationally conducted study, 56 percent of the students sampled claimed convenience as a highly motivating factor for their pursuit of college education.[21] While student enrollment is prompted by convenience, it is the quality of television courses resulting in personal enrichment that ensures lasting student satisfaction and continued utilization of similar courses.

The fact that students are genuinely pleased with their experience in television courses accounts for the research finding that "word of mouth" is often mentioned by students as their prime source of information about these courses.[22] Further, it was reported in "The Ascent of Man" study that students who did not complete the course continue to view the television programs.[23] As claimed in one report the students "remain unanimous in their belief that open-circuit television instruction is tightly organized and effectively paced, as contrasted with the often digressive

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16. Cross, Patricia K. "What Would Happen If. . . ?" A paper presented at the Conference of the League for Innovation in the Community College, Newport Beach, California, March 9, 1978.

17. Schramm, Wilbur. "Learning from Instructional Television." *Review of Educational Research* 32: 156–167; April 1962.

18. Willis, Benjamin C.; Masiko, Jr., Peter; and Erickson, Clifford G. *A Report of a Three Year Experiment by the Chicago City Junior College.* (Summary) Chicago: Chicago's TV College, July 1960. 22 pp.

19. Cross, Patricia K. *Accent on Learning.* San Francisco: Jossey-Bass Inc., Publishers, 1976. 291 pp.

20. Anandam, Kamala. Office of Special Services. "Telecourse Evaluation, 1974–1975. 8 pp. (Unpublished). Office of Institutional Research. "Student Reaction to Television Courses—Spring Semester, 1973–74." Costa Mesa: Coast Community College District, 1974. 101 pp. (Unpublished). 74." Costa Mesa: Coast Community College District, 1974. 101 pp. (Unpublished).

21. Purdy, Leslie, and Icenogle, Darrell. "Classic Theatre: The Humanities in Drama." Costa Mesa: Coast Community College District, December 1976. 145 pp. (Unpublished).

22. Kelly, J. Terence, and Anandam, Kamala. "Report of Workshop for Faculty and Administrators of Florida Community Colleges Offering Television-Based Courses." Florida Community Colleges State Television Consortium, February 1976. 50 pp. (Unpublished).

23. Hoachlander, Marjorie E. *"The Ascent of Man: A Multiple of Uses?"* (Summary) New York: Center for Advanced Study in Education of the City University of New York, May 1977. 28 pp.

and sometimes casual performance of classroom teachers."[24] Those who are not full-time college students and who tend to be older and employed are far more satisfied about open learning than the younger students who are enrolled full-time in college.[25] More importantly, television courses have extended the services of institutions of higher learning to a new clientele, and contrary to common belief, have introduced that new clientele to the on-campus programs.[26] Therefore, faculty expressions of fear that television courses would deplete campus enrollment are not supported by recent trends. In fact, students who take television courses in the privacy and security of their own homes seem to acquire confidence to seek additional college experiences by enrolling in on-campus courses.

The quality of technical production of television series such as "The Ascent of Man" and "Classic Theatre" coupled with nation-wide broadcasts of the series at prime-time plays a significant role in popularizing television courses.[27] Furthermore, the enormous power of television to arouse emotions is an unquestionable asset in learning. It is difficult for educators to predict or control these visceral reactions. What can be predicted is that intense emotional responses do occur! The challenge to guide these affective energies to insure that thousands of people who watch these television programs can have meaningful learning experiences is no small task. Perhaps the best testimony to the foregoing statement is provided by the "Roots" television series. This series broadcast by ABC (American Broadcasting Corporation) is unparalleled in history by the 130 million individuals who watched the program.[28] No single program in American television annals ever attracted such an incredible number of viewers. The emotional reaction was unpredictable. Some rioted in the streets, while others soberly reflected on the meaning of their own heritage; many black Americans internalized their historical and ancestral immigration to their present existence.[29] In one community college, the emotional involvement and personal curiosity stimulated by the "Roots" television series became evident through the increased enrollment in the history course developed by Miami-Dade for national distribution.[30]

In reviewing the studies on instructional television, it is reported that television and classroom instruction that are similar in content are equally effective.[31] The unique capabilities of television as a medium of instruction in higher education are just beginning to emerge. Consequently, research evidence on its teaching effectiveness is not presently available. Nonetheless, anecdotal reports from students and faculty seem to indicate that television is both captivating and instructive.

Two truths can be stated without much hesitation: 1) Some must learn at a distance or not at all; 2) most succeed with the assistance of external motivators or not at all. Television has unquestionable potential to serve as a positive force in the lives of individuals whose circumstances reflect one or both of the above statements. To illustrate, television series that are broadcast on a

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24. Zigerell, James, and Chausaw, Hyman. *"A Fifth Report."* Chicago: Chicago's TV College, January 1974. 38 pp.

25. Hartnett, Rodney T., and others. *The British Open University in the United States.* Princeton: Educational Testing Service, 1974. 8 pp.

26. Zigerell, James, and Chausaw, Hyman. op. cit.

27. Kelly, J. Terence, and Anandam, Kamala. "Nationwide Prime-time Television in Higher Education." *International Journal of Instructional Media 5:219–228:* 1978.

28. "Why 'ROOTS' Hit Home." *Time,* February 14, 1977. pp. 69–71.

29. Fraser, Gerald. "Research Finds that Blacks, Whites Had Faulty Concepts about 'ROOTS'." *The Miami News.* June 10, 1977. p. 5C.

30. Anandam, Kamala. op. cit.

31. Jamison, Dean; Suppes, Patrick; and Wells, Stuart. "The Effectiveness of Alternative Instructional Media: A Survey." *Review of Educational Research* 44: 1–68; Winter 1974.

weekly schedule act as a pacer for the solitary learner.[32] This is in contrast to correspondence courses, which are void of predictable schedule of stimuli to energize the learner. Courses accompanied by scheduled television broadcasts enjoy higher course completion rates than correspondence courses.[33]

Instruction via radio, like television, is as effective as classroom instruction, if not better, particularly when interspersed with appropriate print materials.[34] Purdue University's experiment with radio broadcasts of class lectures to several off-campus students showed that these students scored better than on-campus students in a comprehensive examination.[35] Research coming out of Virginia Commonwealth University also endorses the effectiveness of radio programs in motivating and facilitating learning.[36]

An element of surprise is observed in the faculty when they realize the extensiveness of curricular planning entailed in offering a course in the remote mode. Amazement grows greater when they learn that the telephone, phone-in radio programs, and answering telephone service are available and, in fact, are used for a two-way communication with the distant learners. The realization that computer systems like RSVP can aid in communication as well as individualizing instruction completes this process of enlightenment. Initially, the lack of face-to-face contacts with the students causes faculty apprehension. As they have increased their involvement and familiarity with mediated instruction and support systems, faculty proclaim that lack of face-to-face interactions is not a deterrent for students to learn. As one teacher stated, "If you're taking a course by television, you're gaining more than you lose from lack of contact with an instructor."[37]

Despite the fact that media-based courses which carry instruction into homes are popular, especially for those who complete the learning experience, attrition rates are not exemplary. While the range is anywhere from 30 to 95 percent, the attrition rates in several open learning courses are higher than in on-campus classes. This should not be alarming considering the open-door policy for admission in many institutions and the fact that students choose remote modes for learning without realizing the extent of their capability for independent study. Some techniques are available to help the students to complete the course. For instance, telephone intervention by way of maintaining a dialogue with the distant learners has been effective in increasing course completions.[38] Also, correlational studies conducted at Miami-Dade Community College have repeatedly shown that students who participate in the RSVP system of instruction (approximately two-thirds of the enrollees do, some of whom do so by constant reminders) are more likely to complete the course and make better grades.[39] The point is that by prescribed programs of intervention, attrition can be reduced.

Open learning programs represent "access to education" in its truest sense. The media utilized in these programs touch the masses. Therefore, their impact far exceeds what would typically occur within the confines of a classroom. The success of these media-based programs are determined by educators on the basis of enrollment figures, course completion rates, and grade distributions. These time-honored criteria are universally recognized and accepted as an adequate basis for establishing academic credibility. Unfortunately, evaluation which occurs within these parameters precludes an assessment of some highly desirable societal results. For example, do we know: How many manage their finances better? How many keep their automobiles running? How many avoid environmental pollution? How many become effective parents? The "not so easily measurable" impact on attitudes and values of individuals and the community is too valuable to be ignored. To conduct research in these areas is almost imperative, however hazardous the task might be, to elevate open learning programs from the obvious to the subtle qualities of their impact.

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[32] Brown, Lawrence A. "Learner Responses to The Use of Television in UMA Courses." Lincoln: University of Mid-America, July 1975. 60 pp. (Unpublished).

[33] Lipson, Joseph. "Technology and Adult Education: A Report on the University of Mid-America Experiment." *The Journal of Technological Horizons in Education* 4: 36–38; September/October 1977.

[34] Jamison, Dean; Suppes, Patrick; and Wells, Stuart. op. cit.

[35] Robertson, E. James. op. cit.

[36] Ibid.

[37] Purdy, Leslie, and Icenogle, Darrell. op. cit.

[38] Real, James. "Coast Community College—The Learning Society, California Style." *Change* 10: 22–27, 62; March, 1978.

[39] Anandam, Kamala. op. cit.

Emerging Technology

Projections into the future are as fascinating as they are frightening. Many of our dreams and science fiction of a decade ago have turned real. Where will our dreams and science fiction of today lead us? What is regarded as revolutionary today is likely to be outdated tomorrow. The rate of change throughout the world continues to cause some degree of "future shock" in all of us.[40] The uncertainty of new applications of communications technology stirs up anxiety and insecurity in educators. The implications, while not clear, are threatening.

No one can perceive all the forms of emerging technology. However, there are sufficient indications that, in the next ten to 20 years, we'll be living in a different kind of a world. This is what has been referred to by the Carnegie Commission as the "fourth" revolution!

The advancement of computer technology will be the single most powerful force in radically changing lifestyles. The scientific breakthrough that will be responsible for such an impact is already here in the form of chip technology. There is clear indication that this electronic invention will run through every thread of our social fabric.[41] The chip will make it possible for the extraordinary storage, memory, and retrieval capacities of enormous hardware configurations of today to be reduced to a size which can be comfortably transported from place to place without any appreciable loss of computing capability.

One of the most startling, if not stunning, adaptations of computer technology has been the introduction of a computer that is able to scan a printed page and convey the message orally.[42] The service this machine can render to the blind is incalculable in increasing their opportunities to learn. Undoubtedly, it has an exhilarating effect in lifting their spirits. With various modifications, computers can accommodate voice entry and storage, visual displays of ideas, all of which can improve communication among the handicapped.[43] With some confidence, it can be envisioned that in the not too distant future, homes can be easily connected to sophisticated computer networks. The implications for open learning programs are quite apparent.

Interinstitutional cooperation, where there is a pooling of resources, can insure higher quality distant learning programs that can be extended to a larger clientele.[44] When networks like the Indiana Higher Education Communication Technology System (IHETS) become popular, instructional programs within a country will include sophisticated telecommunication systems that include television, radio, telephone, and computer communications. Cable and satellite facilities will make time and distance immaterial in the teaching-learning process.[45] Participatory TV such as Qube that is being used on an experimental basis in Columbus, Ohio, will permit the students to express their reactions and instantaneously see on the screen statistics about others watching the program and their reactions.[46] The investigations of brain-behavioral scientists permit an unbiased assessment of the interest value of any television program. This is accomplished by providing television sets with brain monitoring equipment to record the brain's attention activities.[47]

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[40] Kelly, J. Terence. "Concepts of Change" in McCabe, Robert H., and Mines, R. F. (Eds.) *Man and Environment Volume I.* Englewood Cliffs: Prentice-Hall, Inc., 1972, pp. 74–96.

[41] "The Age of Miracle Chips." *Time*, February 20, 1978. pp. 44–59.

[42] Watson, Paul G. "Utilization of the Computer with Deaf Learners." *Educational Technology* 18: 47–48; April 1978.

[43] Ibid.

[44] Evans, David L., and Gollatscheck, James F. "Reaching Communities Via Television & Radio: The Florida Model." *Community and Junior College Journal* 46: 6–8; March 1976.

Combining the visual impact of television, the appeal of stereo sound, and the capabilities of computers (storage, retrieval, and random access), the videodisc is likely to revolutionize the delivery of instructional programs for distant learners. The videodisc is already within the reach of the educator and the consumer. Imagine students turning on the television sets in a place of their choice, at a time convenient to them and progressing through programmed instruction![48]

What do all these mean for institutions of higher education? A mind-boggling challenge that most of us might wish would disappear before we have to confront it. The stark reality is that the challenge is here to stay. The emerging forms of technology will inevitably change educators' thinking and behavior. Those educators who have a vision beyond the learning environment of today, a receptive attitude toward change, and a pioneering spirit to persevere will nave the privilege of shaping and controlling the technological innovations in education for inspirational and imaginative forms of learning. Conversely, fear, insecurity and anxiety will prevail for those who choose to dismiss the waves of the future.

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[45] Burlingame, Dwight F., and Simmons, Charles E. P. "Utilizing Technological Developments for the Improvement of Teaching in Higher Education." *International Journal of Instructional Media* 5: 197–203; 1978.

[46] Brown, Les. "Participatory TV." *The Miami News*. April 24, 1978. p. 5C.

[47] "TV Brain Waves and Human Behavior." *Science News* 113: 215; April 1978.

[48] Gray, Robert A. "Videodiscs: Pros and Cons." *International Journal of Instructional Media* 5: 157–159; 1978.

Article 23

"Working with Telecourses"

by
John L. Flanagan

The end product is a seminar called "Working with Telecourses" (WWT) sponsored by the Public Telecommunications Institute (PTI) of the National Association of Educational Broadcasters (NAEB). The starting point was a grant from the Corporation for Public Broadcasting (CPB) in 1978 to the "Station-College Executive Project in Adult Learning (SCEPAL)." The project was a combined effort of Coastline Community College; KOCE-TV, Huntington Beach; KPBS-TV, San Diego; the Nebraska Educational Television Network; the University of California, San Diego; and the University of Mid-America. The project staff consisted of Thomas Gripp, from Coastline Community College, and Kiki Munshi, from the University of California, San Diego.

The project's goal was to aid station executives and college/university administrators in making effective decisions about the implementation and use of television courses. To achieve this end, more than fifty interviews were conducted with people from across the nation. The results of the interviews led to the development of materials used in two Executive Development Seminars that brought together representatives from educational institutions and public television stations. The materials were then revised, refined, and put into a final format that is now a one and a half day intensive seminar called "Working with Telecourses." As of this date, two teams of two instructors each have conducted nearly ten seminars. The topics covered include most aspects of telecourse administration: telecourse definition and resources; selection, adoption, the economics of telecourses, student services, promotion, and station-college interaction. A related topic is alternate distribution systems, and optional sessions are available on consortia, other organizations involved with telecourses, and so forth.

The research materials on which the seminar is based identified many questions and issues in these areas.[1] The seminars have added to these and to our knowledge of "the state of the art." What follows is a discussion on the major questions not treated directly in the seminar materials which have been consistently raised by participants.

Although there are still some who have little or no information about telecourses, by and large, people are far more sophisticated in their knowledge than we had originally anticipated. Questions such as "What constitutes an effective promotional package?" or "How can a consortium of users be formed and how does it work?" are far more frequent than the basic "What is a telecourse, anyway?" type of query.

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From John L. Flanagan, "Working With Telecourses—Questions from a Professional Seminar," *T.H.E. Journal*, vol. 7, no. 6, November 1980, pp. 63–65.

[1] The findings are reported in *Telecourses: Reflections '80* by Kiki Skagen Munshi. It is available from Coastline Community College at cost.

Often when institutions decided they wanted to participate in telecourses, their thoughts turned to production. The "not invented here" syndrome has been strong and many (usually naively) have felt that they could produce "something better than *that*." Recently, however, there has been a subtle shift away from the emphasis on production to a new priority: delivery. Institutions have discovered that telecourses are expensive to produce and far more complex than originally anticipated. This discovery has coincided with the realization that delivery itself can be a sophisticated operation if it is to be done on a large scale. For most, utilization of telecourses is a wiser first step than production with its large requirements for financial resources and expertise. If delivery proves successful, production may be a next step but one taken on a firm basis of an in-place utilization system.

The first-time user rarely anticipates many of the costs of telecourse delivery and can be surprised at the range of items presented in the WWT seminar. Paradoxically, we have found in our exercises that the subsequent reaction is for many colleges to assume a greater part of the financial burden than necessary. At one point in the seminar a list of expense items associated with telecourse delivery is presented. The participants estimate how much each will cost and who will pay for it, station or college. More than once colleges have assumed they need to pay for everything, only to discover that "their" stations were very willing to share certain costs. Stations may provide such diversified products or services as on-air promotion, free air time, graphic design and layout for brochures or newspaper ads, videotape stock, and shipping costs. This considerably cuts the total capital outlay of the college, thus making the telecourse much more cost-effective.

A station's concerns in using telecourses are not as complex or numerous as a college's, but problems often stem from the colleges' lack of understanding of the regulations and constraints under which stations operate. The stations represented in the seminars wanted colleges to be acquainted with their programming needs and how decisions are made. Program Directors are more interested in viewers than enrollments—and enrolled students normally are only a small portion of total viewership. They, therefore, look for high interest video in a series rather than academic quality. Even the "best" course can be totally unsuited for open air broadcast. Moreover, unless programs meet FCC technical requirements for production quality, stations cannot use them at all.

Most people know that colleges need advance planning time; not so many are aware that stations would also like generous lead time. Programming and promotional decisions are made far in advance of air dates, and our college participants learned that they should approach stations several months before they wish to start a telecourse. On the other hand, colleges expressing their frustrations about the lack of firm dates for national series such as "The Shakespeare Plays" or "Cosmos" found that most stations felt equally frustrated.

Colleges are discovering that "prime time" (weekday evenings) may not be as desirable as they had thought. Most data indicates there is nothing magic about telecourses in prime time. Other time slots are just as convenient to students and produce just as many enrollments. Further, since stations expect major viewership in "prime time," very few will consent to run most telecourses during those hours.

The most sensitive item in programming is who will make the final decision about what goes on the air. Colleges believe they know their audience best and are the only possible arbiters of academic quality. Stations cannot accept this completely. Ideally, the decision is a joint one with unanimous agreement, but the ultimate decision must rest with the station. It holds the FCC license and is responsible for what is broadcast. If there is any violation of accepted standards or regulations, it is the station that is in "hot water" and not the college. Colleges need to be sensitive to this as they consider telecourses. Conversely, if the station has no fundamental objection to any of several possible courses, then the decision should be left in the hands of the college. The educational institution knows best which courses can be approved for credit and which courses have the highest enrollment potential.

The academic representatives bring an additional set of problems to the seminar unrelated to their working with television stations. Academic or institutional policies often make it difficult to offer telecourses at all. Some states will not reimburse colleges for students enrolled in them—they are not counted as part of a full-time equivalent (FTE) for student enrollment and their students are not included in funding formulae. In other areas, credit earned through telecourses is identified in a way that limits its ability to satisfy degree requirements. A course is not seen as equivalent to its on-campus counterpart.

Part of the latter problem is the result of a passive attitude toward telecourses. The course is either accepted as it is, without change, or rejected. In fact, there are several ways to adapt telecourses to particular institutional needs. The instructor can arrange for class meetings, additional textbooks, additional assignments, a special project, or a term paper. The copyrighted materials in a telecourse cannot be altered but assignments can, and there is nothing to prevent an instructor from adding material or projects until a course is comparable to the on-campus version. The result should be a transcript that does not differentiate between on-campus courses and telecourses.

College administrators often ask, "What is the equivalency rate between hours of instruction on TV vs. hours of instruction in the classroom?" The question is aimed at finding a multiplier for an equivalency formula—a single number by which the hours of television can be multiplied to see if they equal a standard requirement for hours of conventional instruction. However, telecourses aren't that simple. Not all of the instruction in the course is contained within the television series. At least three and possibly four different components contribute to the knowledge a student gains. The instructional load for a telecourse is divided among the video series, a textbook, the study guide, and possibly class meetings; and the "division of labor" is not necessarily consistent from course to course. The TV programs, particularly, may be more or less important from course to course. The real question is whether the entire package of all the components roughly equals what is taught on campus. Does the student exit both educational experiences at approximately the same level of competency? The presence of 30 half-hour TV lessons, 12 one-hour TV lessons, or some other number should be evaluated only in terms of its contribution to the whole.

The television programs are, of course, important; and they certainly are the most visible component of a telecourse. We have come to believe, however, that the student study guide will often provide the best clue to the educational quality of a telecourse. It is usually the focal point of the course and must be capable of clearly integrating the information from the other components into unified and comprehensive lessons. Good study guides do this with step-by-step instructions and several check points along the way; they tell the student where he or she is going, how to get there, and once there, where he or she has been.

Several topics not formally addressed in the main part of the seminar have been consistently raised by the participants. One of these is the formation and operation of a consortium. TV signals cross traditional college boundaries. This tends to break down the isolation of colleges from one another and promotes either collaboration and cooperation or competition or, sometimes, ill feelings. Seminar participants seem to have already settled the issues of "why a consortium." Better service to the students and shared financial resources are always brought up when the topic is approached. The questions we receive are aimed at the mechanics of forming a consortium and the politics of survival.

In the formation of a consortium there seems to be no substitute for a clearly identified and strong leader. It is best if the leadership transcends a single campus through a regionally known person—better still if the leader is recognized and respected statewide. Along with the appropriate consortium leadership, there has to be a strong advocate for it at the proper administrative level on each campus; the most committed person cannot be effective if he or she has no power at home.

Successful consortia start by insuring complete representation from all institutions in a region. We found in Kentucky that, initially, institutions were uneasy and insisted on a strictly democratic process for every item of business. After awhile, the work load mounted but so, fortunately, did the level of trust so that more and more business could be done at the committee level.

A newly formed consortium tends to deal only with the delivery problem. However, as the consortium matures, it has a method of entering the production area rather painlessly. Many of the major producers of telecourses are offering "buy-ins." For about $50,000, paid prior to production, an institution or consortium can obtain the opportunity to affect changes in the content or production of the telecourse and receive virtually unlimited broadcast rights for five years. Each agreement is slightly different but, nevertheless, if the course under development has the potential for being broadcast several times over the next five years, this opportunity may represent a cost-effective way to combine both production and delivery money.

A second area of discussion is the use of cable to deliver telecourses. At least three reasons for cable augmentation of broadcast courses have emerged. First, cable may provide certain fringe reception areas with a better picture than open-air broadcast. Second, at least at this point in time, there is enough room on cable channels to have several airings of the same lesson each week. Lessons shown at different times of the day increase the accessibility of the telecourse. One individual estimates that his institution's enrollments increased 25 percent when cable repeats were added.

The third reason involves costs. Cable can broadcast ¾" video cassettes, whereas most open-air broadcast units still use 2" tape. The former format is much more convenient and makes cablecasting an attractive alternative to seeking more broadcast time over the air. Further, if a cable company is supplied with lessons on tape, they will usually transmit them free of charge.

The best cable companies to work with seem to be those with over 5,000 subscribers. Below that number certain kinds of obstacles are more frequent. In very small operations there may not be an access channel available for showing your lessons. Even if there is an available channel, there may be no local origination. In other words, the company may not have the equipment to put your tapes on the system. Finally, it takes as much time to arrange airing a telecourse on a smaller system as on a large one—and the potential enrollment is very different.

Cable is being used in another way that concerns our WWT participants: for direct reception of nationally disseminated programs via satellite. The two most widely known educational satellite projects are the Appalachian Community Service Network (ACSN) and the National University Consortium for Telecommunications in Teaching from the University of Maryland. The latter deals with PBS stations rather than cable companies, but the former distributes courses directly to cable companies by using some of the same equipment used to deliver "Showtime," a home movie package. As with most satellite systems, the cable operation must have an earth station with the proper tuning to pick up signals. ACSN levies a small fee to the cable company for using its signal and charges the institution on a per student basis for each student that enrolls in an ACSN course.

These and other questions seem to us to express concerns of educational institutions and public television stations that transcend the topic of telecourses. The stations also ask about the new technologies—cable, satellite, and so forth—and the major query from both seems to be "Where are we going and what will be the shape of telecommunications and education in the future?" The questions about institutional cooperation—indeed, the cooperation between stations and colleges itself—point to an increasing specialization and division of labor as the communication of knowledge expands its base and its audience. Finally the question of standards and ways to formulate them in nontraditional education and broadcasting is one that will occupy us for some time to come.

Article 24

"The Administration of a Telecourse Department"

by
Charlanne Jelen

The pace of technological and sociological progress emphasizes the need for further education and retraining of the community. In order to meet this need, Coastline Community College, one of three colleges within the Coast Community College District serving 491,769 residents in a 105 square mile area, stresses accessibility of programs, making maximum use of coordinated instructional delivery systems, through television courses.

Coastline Community College has no centralized campus. The college utilizes educational centers, civic libraries, and community centers throughout the District as classroom sites. Industrial sites serve as classrooms and telecourse learning centers before and after working hours and during lunch hours.

Through telecourses, Coastline Community College provides nearly every resident in the community with the opportunity to continue the learning process. Broadcast courses for credit result from the conviction that knowledge is portable—people can learn where they are.

Since broadcast television education was introduced in the Coast Community College District in 1972, courses have been offered to fit the needs of all students whether they seek a college degree, a better job, or a better life in their environment.

Telecourses are offered with convenience to the student in mind. Some are offered over KOCE-TV, Channel 50, which is owned and operated by the Board of Trustees of the Coast Community College District. Various commercial and noncommercial television stations operating within the Los Angeles and Orange Counties also broadcast telecourses. Broadcast times vary from the 6:00 a.m. to late afternoon and early evening periods, with repeat airings on the weekends.

Schedule

Each semester twenty television courses and four independent study courses are offered with an enrollment of approximately 5,000 students. These courses have been designed to meet the ever-expanding variety of student objectives, which include professional upgrading, personal enrichment, on-the-job training, college transfer, occupational education and retraining.

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From Charlanne Jelen, "The Administration of A Telecourse Operations Department and The Interface Between The Student, Instructor and College Campus," *T.H.E. Journal Technological Horizons in Education*, October 1977, pp. 19–21, revised and updated.

Instructors

One or more instructors are assigned to each telecourse. Administration of telecourses is done by the division of Telecourses/Independent Studies within the Office of Instruction. It provides support to the telecourse instructors in their interface with the students.

Instructors for telecourses hold California Community College credentials in the discipline related to the telecourses they are managing. Coastline Community College hires instructors from the District-affiliated colleges on an overload assignment basis, or part-time instructors on an hourly assignment basis.

The salary guidelines under which the Coast Community College District is currently operating in hiring learning managers are as follows:

A. Full-Time Certificated Contract Instructors Working an Overload Assignment as Telecourse Instructor

Payment is made at the rate of two (2) contact hours per week for up to one hundred and forty (140) students. An additional payment of one (1) hour per week for each seventy (70) additional students is made when applicable.

The maximum overload assignment for Full-Time Certificated Contract Instructors is six (6) hours overload per week.

B. Hourly Certificated Instructors (other than full-time contract instructors)

Payment to part-time hourly instructors is made at the rate of two (2) hours for the first one-hundred and forty (140) students with one (1) additional hour for each increment of seventy (70) students. The student ratio is lowered to thirty-five (35) students for English Composition.

The maximum assignment for hourly instructors who are not on the regular, full-time certificated staff is six (6) hours per week.

The salary schedule within the Coast Community College District is contingent upon the instructor's educational background and length of service with the District.

In order to answer students' questions, the instructor must be knowledgeable and conversant with all aspects of the telecourse. This includes text materials and each telelesson.

Telecourse instructors are encouraged to keep in contact with our students during this independent study situation. They communicate with the students through frequent mailings and telephone office hours. The instructors for each telecourse prepare an orientation letter, plus four to six information letters throughout the semester.

Most telecourses utilize a testing/prescriptive feedback system, which is coordinated through our District Information Services Department (D.I.S.D.). Each telecourse has an individual telephone number. There is an answering device attached to each telephone. The instructor's office hours are listed in the orientation letter, but students may call and leave messages at any time. The instructor also contacts individual students by telephone to check their progress with the telecourse. This system is proving to be a positive tool in communicating with the students and encouraging them to complete the goals and objectives of the course.

Optional enrichment activities may be planned by the instructors. However, it should always be kept in mind that the nature of media courses involves teaching and learning at a distance.

Systems

The instructors and students rely heavily upon the District Information Services Department (Data Processing), the Instructional Media Center (Reprographic Center), and the District-owned television station, KOCE-TV (Channel 50). Telecourses/Independent Studies Department is instrumental in structuring efficient communication systems among the instructors, students and these departments.

Registration

Students may enroll in television courses in one of three ways, either through regular registration procedures at the beginning of a semester (by mail), by telephone, or in person. Students are permitted to enroll in TV courses through noon Friday of the fourth week of the semester.

Services

As soon as a student has registered in a telecourse, the District Information Services Department (D.I.S.D.) files the student's demographic records in a special computer student tracking file.

During a semester several letters, quizzes and quiz results are mailed to the telecourse student. The D.I.S.D. provides mailing labels or computer-addressed envelopes for these mailings and preprinted quiz/examination cards for all enrolled students. Each course requires from four to thirteen Hollerith quiz cards (preprinted with student's name and I.D. number).

The Instructional Media Center (Reprographic Center) processes approximately 280,000 copies of letters and instructional material for the Telecourses/Independent Studies office during a semester. This operation includes collating, stapling and folding.

Our District-owned television station assists in providing duplicates of the television cassette tapes of the telecourses for the media centers of the affiliated college libraries, six libraries in the community, and businesses within our community. This station also announces enrollment procedures and upcoming midterm and final examination sites and dates.

The use of additional self-help quizzes utilizing a testing/prescriptive feedback system is encouraged. After students have filled in the individual Hollerith quiz cards, the computer system scores and prepares reply data sheets to each participating student. The reply data sheets indicate which questions were answered incorrectly and prescribe areas of the textbooks or telelessons where information relative to the correct answers may be found. The prescriptive feedback for the quizzes for the individual telecourses is printed on a data sheet with a box including the student's name and address. This data sheet is forwarded by D.I.S.D. to the Telecourses/Independent Studies office for folding and mailing.

The quizzes may be drawn from the midterm and/or final exam banks and may offer the students additional credit toward their grades or may be offered to the students as a means of self-evaluation.

Due to the large number of enrollees in telecourses, only two exams—a midterm and a final are required. The dates, times, and places of exams are determined by the instructors and by the availability of large facilities. Use of facilities is scheduled through the Telecourses/Independent Studies office.

The Southern California Consortium for Television and/or the Office of Telecourse Design at Coastline Community College provide examinations for all courses offered by Coastline Community College. In most instances, the examinations are reviewed by a testing consultant for validity before final printing. Data from the examinations are used to revise the examination bank in subsequent semesters.

The typical telecourse examination is an objective test ranging from 50 to 100 items. The instructors have the option of adding items to the test. If they do so, it is necessary to do an item analysis and then to coordinate it with the Telecourse Design Division.

The Telecourses/Independent Studies office provides personnel during the examination periods to assist in distributing materials for the examinations.

An alternate date and time is established for the examinations within a week following the first exam period. This examination is scheduled at a time other than the first scheduled time (e.g., if the first exam was on a Saturday morning, the makeup would not be on a Saturday morning).

Students who will miss examinations must contact the instructor or the Telecourses/Independent Studies office for alternate examinations. Makeups on an individual basis are coordinated and proctored by Telecourses/Independent Studies personnel.

Midterm examinations are given by the ninth week of the semester. Students who have not taken the midterm examination by the ninth week of the semester are withdrawn on the update roster provided by the Admissions and Records Office. This process adheres to state requirements.

Upon completing the final examination, students are asked to complete a Telecourse Student Questionnaire to assist the college and the Telecourses/Independent Studies office in improving its programs. The questionnaire and exams are provided for students by Telecourses/Independent Studies. A return envelope is supplied and the data are compiled.

All telecourse offerings are designated optional credit/no credit. The students have a choice of receiving a letter grade (A, B, or C, or no credit) or a grade of CR/NCR. The students must select the option prior to completion of the first 30% of the course. Telecourse/Independent Studies forwards a letter and option card for return during the fifth week of the semester.

Telecourses/Independent Studies staff is available from 8:00 a.m. to 5:00 p.m. to answer any questions, either on the phone or in person, that are not related to course content.

Ideally, with a student enrollment approximating 6,000, a Telecourses/Independent Studies Department should include an administrative coordinator, a secretary, two typists and a testing coordinator, plus eight part-time student assistants to process the high volume of mail that telecourses generate.

The administrative coordinator's responsibilities encompass the review of prospective telecourses and submittal to curriculum meetings, serving on curriculum committee, hiring instructors, chairing of a learning manager workshop, generating general public relations to the Coast Community College District residents regarding each semester's telecourse offerings. During the semester there is heavy coordination effort towards assisting the instructors in communicating with their students and relating District administrative policies and procedures to the instructors.

Secretarial responsibilities are greatly involved with the smooth coordination effort of typing, getting copies, and processing for mailing all materials between instructors and students. Two typists assist the secretary in this effort. Much of the secretary's and typists' time is taken in telephone contact with students relating to non-course content questions.

Each semester there is a simultaneous effort of coordinating activities of the current and upcoming semesters requiring preparation of new course outlines, hiring of course instructors, and preparation of ongoing public relations efforts.

In order to effectively offer telecourses for credit, there must be strong confidence and commitment by instructional staff and clerical support. The Coast Community College District has this support through Dr. Norman Watson and Dr. Bernard Luskin, who have been leaders in the areas of nontraditional coordinated instructional systems such as telecourses.

In addition to a dedication to an academically sound design and production package, much of the success of this program is due largely to the personal contact initiated by both the instructors and students. Students continually comment that this personal contact encourages them to excel in their course work while learning within their homes and the community. By taking advantage of this opportunity for higher education courses through this nontraditional means, the students have shown they can succeed.

Article 25

"This Year's Blond or a Star for the 80's? Administration of Telecourses at Dallas"

by
Nancy Miller

There is a phrase in the media about the latest hollywood starlet, "she is this year's blond." The phrase makers mean that she will be hyped this year—given much media exposure—but that there is little substance to her ability and, therefore, she will disappear and the media will wait for next year's blond. Every once in a while there will be a surprise and "this year's blond" becomes a star and glitters for a long and successful career. Many administrators and faculty regard telecourses as "this year's blond"—that latest in a long line of educational fads. Everyone will attend workshops in or conference on and then they will fade from the scene. In a little over ten years, it may be too early to tell whether telecourses will rise to "star" status and become part of the array of options a student may select for college course delivery. The many options offered by the National PBS adult service, the availability of cable, video cassettes—in the home and school—the linkage of video and computers, along with such possibilities as direct satellite broadcast and the video disc, make any generalizations about the future of telecourses difficult. Institutions must, however, make decisions about how the instructional system called telecourses will be administered and implemented.

There are a number of administrative models from which to choose. Each institution's operating philosophy will influence how it will go about the process of implementing telecourses. Dallas offers its own unique model. Of the large multi-campus systems, Dallas County Community College District is the only one that has attempted to fully integrate telecourse students into its colleges without creating an open college or a separate division within the colleges to manage telecourses. In Dallas the functions of acquisition or production of telecourses, negotiation of airtime for broadcast and cable, coordination of course components—syllabi, tests, newsletters, study guide development and revision are all handled centrally. Promotion and evaluation are also handled centrally.

Each of the seven colleges hires faculty, arranges for testing, registers students, and counts the students in its records for state reporting purposes. This telecourse system is geared to serve the distant learner—the person who cannot or may not wish to come to campus on a regular basis. The concern of the system is to give the student enough support to keep him/her involved and to give the student avenues for relief if he/she is having problems.

Figure one organization chart demonstrates how DCCCD manages the complex services provided to its telecourse students. Key elements of this chart are the Coordinator of Telecourse Implementation, the ITV Administrator and the Faculty Coordinator. For purposes of this paper

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it is assumed that the decision to offer telecourses has been made and one faculty member, part- or full-time, has been named to serve on a committee that reviews all materials in the instructional system. (That decision process is another paper in itself.) These faculty will be the instructors of record at each college. A faculty coordinator is selected from that group. The faculty coordinator has 20% of his or her contract paid by the Center and that faculty member is responsible for content and telecourse administration in the ways listed below.

District Telecourse Coordinating Instructor

A. Job Description

The coordinating instructor is normally the faculty member who served as the content specialist for a course developed or adapted by the DCCCD. He/she may also serve as a campus instructor in the course. His/her duties as a coordinating instructor are to:

1. Orient new faculty to course content and management.
2. Coordinate orientation sessions and discussion meetings at the colleges.
3. Prepare student faculty syllabi.
4. Meet periodically with campus instructors to consult about problems, procedures, and course content.
5. Prepare master copy of examinations with keys for the course.
6. Write and prepare a welcome letter and at least three newsletters during the semester to be printed and distributed to students by mail by the Center for Telecommunications.
7. Participate in evaluation of the course in cooperation with the Research Design Specialist of the Center for Telecommunications.
8. Act as chairperson of the faculty advisory committee in drawing up recommendations for revisions in course elements.
9. Assist the Center for Telecommunications in scheduling examinations for the semester.
10. Work with College Administrators and Division Chairs in supervision of campus instructors.

B. Evaluation

The District telecourse coordinating instructor should include the above duties in his/her yearly Individual Action Plan (self evaluation). The Division Chairperson may consult with appropriate Center for Telecommunications staff on this plan.

C. Remuneration

Remuneration for a coordinating instructor will be one-fifth of normal campus instructional load or an extra-service assignment, depending on the course and special requirements which may exist. The instructor will be compensated by the Center for Telecommunications. In his/her duties as coordinating instructor for a telecourse, the faculty member will be responsible to the Director of Telecommunications or his/her designate.

A faculty member has responsibility for contact with students at each college. The job description is generally as follows:

Telecourse Campus Instructor

A. Job Description

The campus instructor is responsible for assisting students enrolled in a telecourse at a given college, for maintaining student records and grades, and for contributing to the improvement of the telecourse. The campus instructor reports to the appropriate college division chairperson. The campus instructor:

1. Particularizes for his/her college a course welcome letter, originated by the course coordinating instructor, that includes essential information needed to get a student started (stressing attendance at orientation) and insures that letters are distributed to all enrollees during registration (regular and late on-campus and mail-in registration). Coordinates the contents of this letter with the telecourse college administrator. Works with Telecourse Administrator to see that all relevant materials are available for mail-in registration.
2. Prepares for and conducts orientation sessions and discussion meetings for students enrolled in the course.
3. Watches the television programs of the course, becoming familiar with their content and the content of the study guide, text, and other course materials.
4. Schedules and maintains regular office hours each week during which telecourse students may visit or telephone. These hours may coincide with normal office hours. During the course of the semester, the telecourse instructor should contact each student by phone.
5. Responds promptly to student calls or messages forwarded from the Hotline. (These calls may need to be returned at times other than during office hours to meet student needs.)
6. Maintains student participation records according to current District telecourse reporting guidelines.
7. Before each exam, arranges for the duplication of tests from the master set of tests. Delivers tests to testing center and sees that appropriate answer sheets have been provided, verifies that instructions are clear and that test item numbers correspond.
8. Grades examinations and assignments, maintains grade records for each student. Arranges a procedure for notifying students of their grades.
9. Makes determinations regarding make-up tests, withdrawals, and other student needs.
10. Meets periodically with the coordinating instructor and other campus instructors in the telecourse to review and to suggest test items, to discuss items to be included in the newsletters, to review course materials, and to assist in evaluation.
11. Contributes to the development and maintenance of a bank of test items for the course.
12. Orders textbooks and study guides, as appropriate, according to college procedures.
13. Assists the Center for Telecommunications staff as needed in conducting evaluative research on the telecourse.

The campus instructor is responsible to his/her division chairperson for the above duties, and is governed by the policies of the college to which he/she is assigned. In order to assist with the clerical activities of his/her responsibility, he/she may be provided with student assistance by the college. The college telecourse administrator assists the instructor as a liaison with the Center for Telecommunications staff.

B. Support

The college provides necessary supplies and student assistance for clerical support, as the need is determined by the appropriate administrator.

C. Evaluation

The course coordinating instructor may participate in evaluating instructor effectiveness in executing items 1–14 above.

This job description has been modified to take into account specific tasks in English and Humanities courses. Whenever a new course is to be implemented a task analysis is conducted to assess the necessity of changes in the job description or in the method of compensation.

There have been a variety of compensation formulae for faculty employed in telecourse instruction. Factors that influence compensation are college tradition, unionization, and personnel policies related to remuneration and funding procedures. In the Dallas County Community College District the remuneration formulae were originally based on extra-service/over-load guide lines. The number of students a faculty member could handle was arrived at by calculating the amount of time spent on a class in the "traditional" mode and the amount of time required to perform the tasks related to "distance learner" instruction. Over the 10 years that telecourses have been offered four colleges have been added to the system and individual college traditions have developed. The Center for Telecommunications now gives broad guidelines for compensation. Particularly the Center addresses what constitutes a full overload. Colleges enter into contract with the faculty for telecourse management and negotiate compensation within these broad guidelines.

The College Instructional Television Administrator is responsible for the non-content related administration of telecourses. At all colleges the Associate Dean of Learning Resource Centers is the ITV Administrator. The job description for this position is as follows:

TV College Administrator

A. Primary Organizational Relationship

1. Responsible normally to the Vice President-Instruction or designate.
2. Will be Associate Dean LRC and may also be responsible for cable coordination.
3. Responsible for Telecourse Administration budget. May include budgeting for test center personnel.
4. Delegated responsibility for Telecourse Campus Instructors and Coordinators through the respective Division Chairs.
5. Works with District Coordinating Instructors in the evaluation of telecourse instruction.

B. Responsibilities

1. Responsible for the coordination of the on-campus registration procedures for TV courses. Delegate authority to someone in registrar's office to handle mail-in registration and provide that person with necessary materials. May include hiring and supervision of part-time personnel.
2. Responsible for scheduling orientations, late orientation, and diagnostic tests (if necessary), discussion meetings, and tests for telecourses.
3. Responsible for processing instructor part-time and extra-service agreements and for coordination of the orientation/training of new telecourse faculty.

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4. Responsible for making necessary arrangements with security and maintenance personnel for tests, orientation, and discussion meetings on weekends.
5. May hire and supervise test supervisor who schedules and supervises proctors:
   (1) Hires and trains (if necessary).
   (2) Processes time sheets.
   (3) Assists in test set-up and knock-down.
6. Review telecourse instructors' hotline referrals.
7. Serve as receiving, distributing, and dispatching point for materials. Verify that instructors duplicate and deliver tests to testing center.
8. Problem solve with the college testing/assessment center and all college divisions involved in telecourses and with the Center for Telecommunications.
9. Serve as liaison between the Center for Telecommunications and the college, including Vice Presidents, instructional divisions, LRC, and Counseling.
10. Attend telecourse administrators meetings.
11. Confirm with division chairs that adequate text, study guide, and supply orders for all telecourses are submitted to the college bookstore in a timely fashion.
12. Responsible for coordination/consultation regarding faculty productivity and morale.

The coordination carried out by the Telecommunications Center keep the standards of content and administration equal throughout the district. A Center produced information bulletin is published each semester by the Telecourse Coordinator working with both faculty and the College telecourse Administrators who provide college based information.

A Hotline is operated by the Center. The Hotline personnel are on duty Monday through Friday, 8:00 AM to 6:00 PM, and there is an answering machine at other times. The Hotline personnel are trained in procedures and have information about all courses. Often they can answer student questions immediately. They also provide the first indication of trouble in our system such as program interruption on cable or broadcast or improper test procedures in assessment centers. The Hotline personnel are also the link to the faculty. Each faculty member gives the Hotline office hours and/or calls in daily. Any questions related to content or student status vis-a-vis the college are referred to the faculty or College Telecourse Administrator at the student's college.

The Center is also the filter through which all tests, syllabi, newsletters and other communication must flow. The coordinating faculty member for each course is the Center's link to content matters. The Center's Coordinator, working with coordinating and committee faculty at each college, is able to assure that the course is being kept current and that nothing is drifting out of phase.

Any problems, as well as sequenced information related to each course are addressed through newsletters sent to students three or four times a semester. Not only do these newsletters remind the student of exams, meetings, and assignments, but they serve as a vital means of communication to prompt the student to stay involved. As Dallas County is more completely wired for cable there will be "live" newsletters. In these "live" cablecasts the faculty may speak directly to questions or concerns that have arisen. Also students will be able to call in to the instructor. The newsletter is also used to inform the student of campus support systems. Among those systems most often mentioned in Newsletters are counseling services and assessment center activities, such as test-anxiety workshops and how-to-study seminars.

All colleges of the Dallas County Community College District have testing/assessment centers. Telecourse testing is scheduled according to each telecourse design for three or four examinations. The pattern for most colleges is to test for one week. Most testing/assessment centers are open day and evening and, in most cases, on weekends. All tests are graded by machine grading systems and immediate feedback is given to students on the objective portion of the tests. In many courses written work is required. The faculty decide in advance on the criteria for grading written material. If there are questions about written work, these are resolved by teleconference with the faculty committee. Grades are mailed to all students within one week of the examination using computer generated labels. These labels are also used to contact any student who has not taken an exam, by sending material that might prompt the student to continue or make contact with the faculty. The tests are subjected to item analysis each semester and revised accordingly. All test questions are on a word-processor and a new version of each test is generated each semester.

Evaluation of telecourses has been an on-going activity of the Center for Telecommunications. It is the position of the District that telecourses are a system and, therefore, the entire system is evaluated. All new courses are subjected to a more comprehensive evaluation.

Telecourses are now delivered to student homes in Dallas County through open circuit broadcast on KERA-TV, the local Public Broadcast station. The District purchases time to the maximum allowed by the KERA-TV schedule. The broadcast times are primarily Saturday and Sunday, with repeats early morning and late evening, for a total of 30 hours of air time a week for 11 to 13 courses. The Center has begun to utilize cable as a secondary medium for delivery of telecourses. The two delivery systems assure telecourses on the television at times that fit almost any viewering schedule. In addition, cassettes of the telecourses are available in libraries of the District's seven colleges and in some public libraries.

Open broadcast is a shrinking and expensive resource. Cable is a growing and unstable medium. In Dallas County there is the potential for 30 different franchises. Because of the current instability of the industries' systems, much energy must be devoted to using cable as a source of program delivery. Cable becomes more attractive as more homes are wired. The possibilities for partnership between cable companies and the District to serve more citizens more effectively make early start up problems worth the expenditure of time involved.

The on-going problem with the Dallas County Community College District method of organization is the institutionalization of telecourses utilization. The systems that are in place need continuous maintenance and are subject to break down at many points. The seemingly clear division of labor between administration and teaching functions at and between the colleges and the Center for Telecommunications become less clear in day-to-day situations. Working relationships between the colleges and between the colleges and the Center must be continuously monitored. Changes in personnel and in priorities of key individuals mean that there can be break downs in how information is communicated to students and the level of service students in telecourses receive at the colleges. Although telecourses are often the first experience that a student has with a college, although students have been tracked, and although it is known that many will continue in on-campus courses, the telecourse student is often lost in institutional procedures. When problems are encountered these problems are seen as someone else's problem. It is District policy that telecourse students will be enrolled on the campus and will be served through a variety of Center and college services. The Center for Telecommunications and the colleges continuously work to find better ways of resolving the issues related to serving the telecourse student. Because of these cooperative efforts a system has evolved in Dallas that moves telecourse from "this year's blonde"—this years educational fad—to viable, lively, successful alternatives for the delivery of instruction.

DALLAS COUNTY COMMUNITY COLLEGE DISTRICT
CENTER FOR TELECOMMUNICATIONS

ORGANIZATION CHART

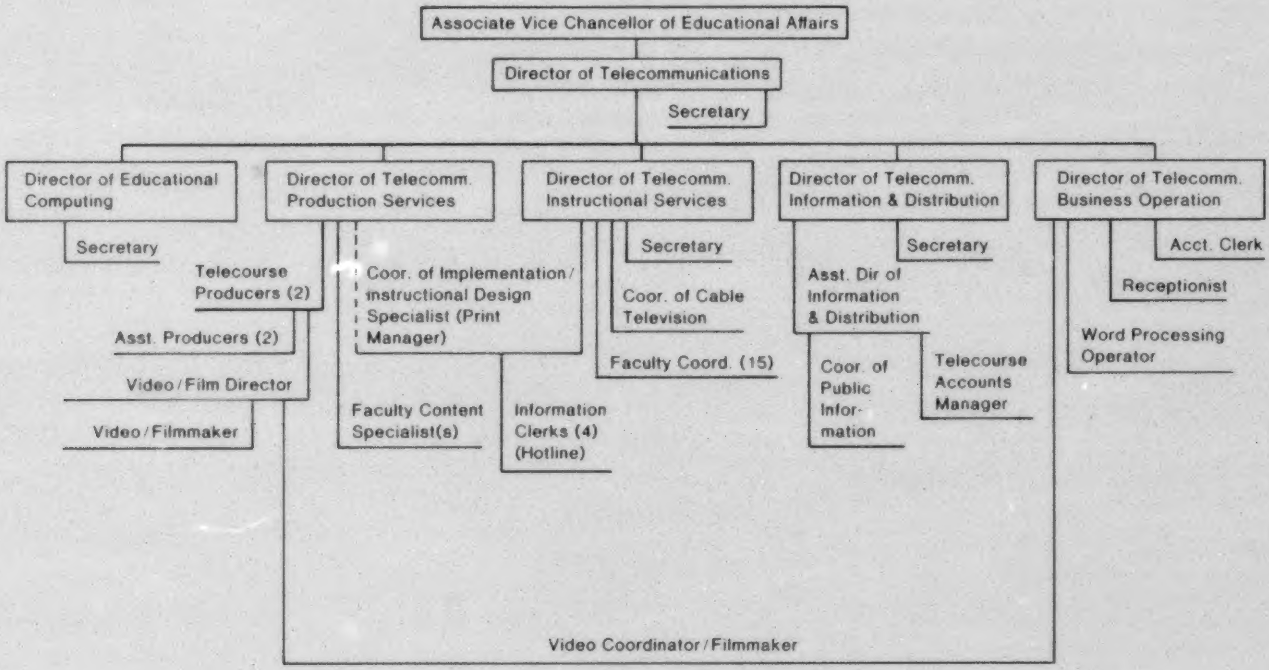
Associate Vice Chancellor of Educational Affairs
Director of Telecommunications
Secretary
Director of Educational Computing
Director of Telecomm. Production Services
Director of Telecomm. Instructional Services
Director of Telecomm. Information & Distribution
Director of Telecomm. Business Operation
Secretary
Telecourse Producers (2)
Asst. Producers (2)
Video/Film Director
Video/Filmmaker
Coor. of Implementation/Instructional Design Specialist (Print Manager)
Faculty Content Specialist(s)
Information Clerks (4) (Hotline)
Secretary
Coor. of Cable Television
Faculty Coord. (15)
Secretary
Asst. Dir of Information & Distribution
Coor. of Public Infor-mation
Telecourse Accounts Manager
Acct. Clerk
Receptionist
Word Processing Operator
Video Coordinator/Filmmaker

Figure 1.

Article 26

"Developing Technology to Enhance the Educational Process"

by
Allan E. Hershfield

Several thousand years ago, there was an island in the Mediterranean on which the people had reached a very high level of civilization. One of the unusual characteristics of this society was that it had no formal system of education. Parents "educated" their children in an informal way, passing along the wisdom and history of their society in the course of day-to-day activities.

Like many other city states of that time, this island state had a large central market that was both a commercial and social gathering place. One day, a number of the adults who came to the market regularly noticed a fairly large group of children had assembled around a young man named "Thok," and were listening avidly to everything Thok had to say. They witnessed the children ask Thok questions and were most impressed by the wisdom of Thok's answers to these questions, and by the question he, in turn, posed to the children.

After talking among themselves, these adults agreed Thok was so smart, and possessed so much wisdom, all the children in their country should be exposed to his brilliance. They approached Thok, and told him they would all chip in to pay him a daily fee if he would share his wisdom with all the children in the society—the children to be assembled in the market place Monday through Friday from 9 a.m. to 5 p.m. Thok agreed and began to meet with the children daily. As the adults continued to go about their business in the market place, some of them listened with some care to Thok's discussion with the youngsters, and they discovered that Thok had a great many things to say that would benefit adults. So, they went to him and asked him if he would meet with the adults in the same way he was meeting with the children. Thok agreed, and the adults began to meet with Thok in the market place from 7 p.m. to 9:30 p.m. five nights a week. (The market was, afterall, full of children during the daytime hours.)

This arrangement was most successful, and went on undisturbed for many years. As Thok got older, his voice began to weaken, and one night, as he was speaking to the adults, a voice from the rear of the market place shouted, "Speak louder, we can't hear you back here." Thok's voice was weak and he couldn't speak louder, but he was quick witted. He walked over to a nearby palm tree, took off a long, flat leaf, rolled it up to form a megaphone-like amplifier, and continued his presentation using the leaf. This innovation worked very well. The rolled leaf amplified Thok's voice and he was able to continue his teaching.

This innovation, the use of the rolled leaf as an amplifier, became routine and no one thought anything about it until one day, the island received a visitor—a teacher from a neighboring city state. This visiting scholar watched Thok speaking with the children in the daytime and the adults at night, and noted the leaf. In his society, no one used a leaf to teach, and so he began to ask the question, "Can the leaf teach." Being an inquisitive soul, and after gaining the full cooperation of the adults and the children of the society, he submitted a grant proposal to one of the country's

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> largest, and wealthiest olive merchants. The proposal laid out an ambitious research project intended to answer the question, "Can the leaf teach?" The merchant was taken with the question and funded the research project.
>
> The visiting scholar then divided the children, who assembled in the market during the day, into two groups. He did the same thing with the adults who assembled in the market place at night to hear Thok. Then, Thok addressed each group separately. During the day, one group heard him through the leaf and the other listened to him without the leaf, and the experiment was repeated at night. After using an abacus, and conducting a lengthy multi-factoral analysis, the visiting scholar concluded there were no significant differences between Thok and the leaf.

The moral of this story is that most of the people interested in instructional technology have focused their attention on the leaf, and not on Thok and the students. If we are going to make effective use of technology for educational purposes, we must move away with this simplistic faith in technology, and understand how to help Thok learn to use technology to improve the education delivered to students. To do this, we must come to understand the past and make realistic plans for the future.

Understanding Past—Realistic Future Plans

Breathless technologists and futurists have been predicting a technological revolution in education, at all levels, ever since motion pictures appeared more than eighty years ago. When radio broadcasting developed in the 1920s, it too was supposed to bring about basic changes in our educational systems. Then, teaching machines, television and computers were seen by many as technological innovations that would bring about fundamental changes in the teaching-learning process.

Having received my own formal elementary, secondary and college education from the 1930s through the 1960s, in a number of different schools and systems, I can state categorically that, apart from an occasional Encyclopaedia Brittanica film, my contemporaries and I saw no evidence of this so-called revolution. The educational process through which we went was very much like the process most young people experience, today. Although, I daresay, it may have been somewhat more rigorous.

Undaunted by the gross inaccuracy of previous predictions of technologically driven change in elementary, secondary, and higher education, contemporary oracles are now forecasting video cassettes, video-discs, lasers, communications satellites and two-way cable systems will, at last, bring us to the educational millenium.

In spite of the extraordinary impact all of these technological innovations have had (and are likely to have in the future) on American society in general, they have had little influence on what happens in the average American classroom—be it in an elementary or secondary school or on a university campus. If we looked in on the average American classroom, today, we would find one teacher or professor standing in front of a group of students, presenting materials. At the elementary and secondary school levels, we might also find the teacher posing questions, and accepting responses from students with up-raised hands. Thus, the educational process in the average classroom has changed little since before the invention of movable type in 1448. Until books could be reproduced speedily and inexpensively, the only way a teacher could communicate knowledge to large numbers of students rather quickly was to stand in front of them and read his or her own handwritten notes. The students could then make their own notes for later study. When Johann Gutenberg began printing books, more than 400 years ago, he made this type of instruction obsolete. Yet, this approach to education is still the dominant mode of classroom instruction, and the classroom is the place in which most formal education takes place in the United States.

Thus, we have a single model of the way formal education takes place, and the administration of our schools and universities, with a few minor exceptions, is based on this model, as are state and federal policies related to education. Educational approaches that depart from this model have little chance of success because they don't fit the preconceived notions of faculty, administrators, students, legislators, and staff personnel in departments of education, statewide educational coordinating bodies, and the federal government.

Current Model

Before describing some of the impediments, systemic and otherwise, that block effective use of instructional technology in American education, it might be useful to sketch out some of the assumptions implicit in our current model of education about what a professor or teacher does in preparing to teach a class and in actually teaching it. Generally, educators do essentially the same thing no matter the level at which they teach: They plan the course; present the material and make outside work assignments; stimulate and motivate the students; assess how much the students have learned, report the information on how much the students have learned to a central record keeper and to the students, and most important, they provide an example to the students of the way authority figures behave towards students and towards one another. Most of the teacher's time for a given course is devoted to planning and preparing the course and presenting material to students. It is, therefore, important to think about what we really expect of a good teacher who performs these tasks extremely well.

First of all, the teacher should have mastery of the subject matter he or she is supposed to teach. While the level of required mastery will vary according to the level of instruction, there is no doubt our model teacher should be able to select from all the information he or she knows, that material which is most appropriate for the type of students he or she will be teaching. Since knowledge changes rapidly in so many fields, this means the teacher must keep up with the latest discoveries in his or her subject area, and must revise his or her course to take into account these changes, every time the course is taught.

Second, the superb teacher must determine how best to structure and deliver the course so the students will learn not only the material, but also learn how to solve problems and how to be creative and use their imaginations.

Effective teaching, then is a complex series of activities involving many very different skills. Our traditional model of education assumes all teachers have all these skills and use them to near perfection. Yet, if each of us were to reflect back on our own experiences in elementary and secondary school and in colleges and universities, I suspect most of us would be hard put to remember more than one teacher who stimulated and motivated us, as well as helping us learn the latest knowledge in his or her subject area.

From personal experience, I can say when a student has the great good fortune to come in contact with one such teacher during the course of his or her education, that teacher usually makes a permanent, positive impact on a student's life. In twenty years of schooling, I have been lucky enough to have two such teachers—both of whom taught at the university level. While I am extraordinarily grateful for having had the opportunity to sit at the feet, so to speak, of two such great teachers, I ask myself what about the other approximately 113 teachers who instructed me from grammar school through two master's degrees and a Ph.D.? Very few of them possessed all the skills our traditional model of education assumes each teacher to have.

The Promise of Instructional Technology

The great promise of instructional technology is that it, at last, offers an opportunity to develop models of education far different from the current dominant one, and in so doing, make major improvements in the quality and effectiveness of education. We may also be able to use technology to improve educational efficiency. *There is, however, nothing inherent in the nature of instructional technology that guarantees these outcomes.* Instructional television, for example, is used frequently to do nothing more than transmit what happens in the classroom. When that is done, the televised lesson usually combines the worst aspects of the classroom experience with the worst aspects of television, without the benefits of either form of instruction.

The perplexing issue with which all of us interested in improving education must deal is, given the existence of new communication and instructional technology, why haven't we been able to use these technologies to make major improvements in our traditional educational processes?

Why hasn't the mere existence of innovations in communication and instructional technology brought about the same kinds of sweeping changes in the educational process that the invention of the steam engine and its precursor inventions wrought when the Industrial Revolution swept across England and then, much of the rest of the world? Critics, searching for the answer to this question, frequently point their fingers at teachers and faculty members, charging them with unwarranted conservatism, downright recalcitrance, and being the major obstacle to technological innovation in education.

While no description of impediments to the use of technology would be complete without an explanation of the fundamental basis for general faculty conservatism, let me sketch out some of the systemic characteristics and other types of barriers that make it most impossible for even those few faculty members who might wish to use instructional technology to do so effectively.

Comparing the Course Development Processes

A good way to begin is to compare the course development process in the traditional institution of higher education with the procedures used to create courses (instructional software) that make full use of instructional technology.

The course development process in a traditional college or university is basically labor intensive, involving a single faculty member in the development of a particular course. Usually, no major capital investment is required—except that originally needed for buildings, laboratories, libraries, etc. Apart from an occasional summer grant to support a faculty member while he or she develops a new course, there are no major costs associated with such an activity. Most new courses are developed *as they are taught*—while the faculty member is teaching other courses, engaged in research, advising students, participating in committee work and carrying on whatever public service activities can be fitted into a busy schedule. Faculty are, in effect, being paid a single sum of money to develop and to deliver a course.

Unlike the traditional course creation process just described, courses developed to use technology effectively often involve recording an entire course or much of the material in advance, in one or more forms—films, videotapes, computer programs, programmed texts, audio-tapes, slides, carefully-structured printed materials, etc. The development process for this type of course is different from the one just described, and is not consistent with common institutional practice, state policy, faculty and administrative values and behavior, and the traditional model of education.

Imagine the reception a group of foreign language faculty members from three different universities in one state would receive from their department chairpersons, their deans, or vice chancellors, or the head of the state's postsecondary commission or chair of the legislature's finance committee, if they made the following request:

> After careful study and thought, we believe we can make a major improvement in the teaching of French by developing a technologically-based program to be used at our universities, and other universities in the state which might wish to buy or rent our materials for on-campus use, or for off-campus, adult education. We plan to begin by developing an introductory French course for first-year students. Here is what we need to create this course.
>
> We (all three of us) need a full year of released time, a learning theorist, an instructional technologist, two graduate assistants and a full-time secretary, all at a total cost of $124,000. Our group, functioning as a course development team, will develop and test an introductory French course. When we have completed this development work, we will need another $150,000 to produce color video cassettes, audio cassettes, computer-based programmed texts and examinations, controlled vocabulary reading materials and a diagnostic entry examination to be administered to all entering students. We will also need $10,000 to hire as consultants the three senior experts in this field in the United States, as well as several of our colleagues from other universities in this state. When the course had been completed and is ready for delivery, our three universities will each have to spend $50,000 to deliver this course. Moreover, because the students will be spending a great deal of time working independently with the materials produced for this course, and less time listening to us live in the classroom, our number of student contact hours will be reduced substantially, but because this course will be used to teach many more students than we could have taught in the traditional mode, we should have reduced course loads. If these materials are sold or used outside of our universities, we should receive residual payments similar to those paid to film and television performers. Finally, we'll need to provide $15,000 per year for possible annual revision of a portion of the materials.

Although this approach to course development may seem over blown, it is very similar (although not identical) to the development process used by the British Open University to develop superb, internationally acclaimed courses that are used by adults who cannot attend a college or university, on campus as full-time students. The development of one of these British Open University courses costs more than $500,000.

The example just presented demonstrates only one of the many ways of creating course materials to make effective use of instructional technology. Other somewhat less complex and expensive approaches can be used with good results. This example is particularly useful, however, because it provides such a stark contrast to the traditional model of course development.

Barriers

Now, let me describe some of the barriers that make it all but impossible to use a sophisticated course development process similar to the one just described to improve the effectiveness and efficiency of higher education.

Current administrative practice makes it impossible to consider funding course development in the high technology mode. Funds are allocated to departments, and the largest proportion of the budget, 70 to 80 percent, is used to pay salaries. Ideas which do not fit this "bits and pieces" resource allocation system are excluded from consideration.

The full-scale, technologically-based course development process is heavily capital intensive—with very large amounts of resources being required to develop a single course or unit. Capital is needed to produce and test the software: to set up and operate a system to deliver the course, and to provide funds to update the twenty-percent of the software on an annual basis.

Few, if any, American states, colleges or universities have any regular mechanism for funding course development activities of this nature on a large scale. Development of this type, to the extent that it does occur, almost always takes place as an unusual exception to existing practice.

The only way such heavy capital investments can be justified is for the course or its various components to be used by very large numbers of students—many more than a single faculty member would normally teach during one academic term. Let us pursue this point further by analyzing the situation of one of the three faculty members mentioned in our earlier example.

Assume a faculty member normally teaches three different three-credit courses per term, and the average enrollment in each course is 30 students. Using current administrative terminology, the faculty member would have "generated 270 student credit-hours—ninety for each course (3 credit hours × 30 student @ 90 student credit hours × 3 courses @ 270)." If the faculty member's salary were $26,000 per year, for a nine-month contract, and the academic year had two semesters, the direct cost of instruction in the traditional mode is almost $39 per student credit hour ($26,000 ✓ 2 semesters—$13,000 per semester ✓ 270 student credit hours—$48.15).

Looking at the high technology model, the costs mentioned above come to:

Capital	$344,000	for software development and equipment
Recurring annual costs	$ 15,000	updating and delivery of software

This does not include the faculty member's salary that is treated below. Since the average faculty member would seldom teach three sections of the same course during one semester, let us assume two of the three sections he or she teaches are of the same course, and this is the one which will be produced using the technological approach to development. In two sections of this course, with 30 students each, the faculty member will generate 180 student credit hours. The cost for his or her salary, apportioned by student credit hours, is still $48.15. If the technologically-based course were to be used only once to teach two sections of the class, the additional costs per student credit hour generated would be $1,855.55. The faculty member's salary added to that would bring overall cost to $1,903.70 per student credit hour generated. If we assume the course will be used five years, without major modifications, (the $15,000 budget for recurring costs is for minor modifications) to teach two sections per semester, or four sections per academic year, the faculty member would generate 1,800 student credit hours, and the annual capital cost would be $78,800 derived as follows:

One Time Capital Cost	Four-Year* Revision Cost at $15,000 per yr.	Total Annual Capital Cost 5 yr.
$334,000	+ $60,000 = 394,000 ÷	5 yrs. @ $78,800

*No revision required during the first year.

The cost of course development would be $218.88 per student credit hour. Adding the cost of the faculty member's salary, we arrive at a cost of almost $267.03 per student credit-hour generated, if the course developed is used only to teach those students the individual faculty member would have taught anyway. The cost for this form of delivery would be more than 5.5 times that of instruction in the traditional mode.

The course would have to be used to teach 3,416 students over a five-year period, rather than the 600 who would normally be taught, to get the cost per student credit hour down to $38.44, not counting the added cost of the faculty member's salary. This analysis makes it clear that the full *scale use of technology cannot result in the more efficient delivery of educational services within a few universities and colleges unless technology is used to displace faculty members.* This poses a fundamental dilemma.

The Dilemma of Development

If one were the president of a large manufacturing firm, interested in increasing the productivity of the manufacturing operation, he or she could call upon the research and development section to develop or acquire new, and more efficient machines or processes. Once these were available, management would make the decision to install them in the factory (assuming there were no legal obstacles such as union contracts); the workers would be instructed on how to operate the new machines; they would begin to operate them; and the company would benefit from increased productivity, and in most instances, so would the workers.

Unlike the factory, it is the University's "workers," the faculty, who must develop the software to be used on the computer, the television set, the teaching machine, etc. Thus, even those few individual faculty members who might be willing to try to develop new, more effective and efficient approaches to delivering educational services, would stop very quickly once they perceived they were being asked to invent the means by which to put themselves and many of their colleagues out of a job.

Many individuals who push for the wider use of instructional technology seldom take into account student attitudes toward such developments. In an urban-industrial society, increasingly depersonalized by the use of technology in almost every phase of life, *university students are not likely to be pleased with an approach to instruction they perceive will afford them less face-to-face contact with their professors*. Indeed, there is some anecdotal evidence to suggest substantial numbers of older adults may enroll in extension courses primarily to be with other people and to have an opportunity to interact with the professor.

Faculty, too, generally react negatively to what they perceive to be the depersonalization of the educational process that may result from the increased use of instructional technology.

There are those both within and outside of our institutions of higher education who appear to be breathless enthusiasts for mediated instruction as an end in itself. Such individuals take on a variety of forms—all of which with good reason, tend to alienate the faculty.

Absence of Technology Objectivity

It is difficult to find, within most American universities and colleges, trained instructional technologists who can deal with a wide variety of technological and non-technological approaches to education with equal competence, professionalism and ease. One tends to find experts in instructional television, computer-based instruction, and audio-visual equipment such as film and overhead projectors, etc. Each of these individuals is a devotee of his or her particular form to technology, and recommends it vigorously to resolve every pedagogical problem. "Experts" such as these often lose sight of students as the beneficiaries of the educational process.

Moreover, faculty, administrators and students have all too often been frustrated by the failure or inadequacy of both the equipment and the software provided by these "experts," and this too contributes to the reinforcement of negative attitudes towards the use of technology.

A second, but no less vexing, aspect of the instructional technology panacea is frequently demonstrated by a politician, state agency official, or self-styled-expert who sometimes exhibits a bad case of "mediaitis." This illness takes at least two forms. A symptom of Type A Mediaitis is a suggestion that gobs of money could be saved if only "we would put one faculty member on television, somewhere in the state, and broadcast that faculty member's sterling lectures to thousands of expectant and eager students." Type B Mediaitis is somewhat different. In this form of the illness, an expert spends a great deal of time expounding upon the need for a particular type of technologically-based delivery system, e.g., broadcast, closed circuit TV, satellite, videodisc, etc.

Faculty Conservatism

Having described many of the systemic barriers to the use of technology to improve educational effectiveness and efficiency, it now seems wise to attempt to understand the basis for the university and college faculty's general conservatism towards new approaches to instruction—both technological and non-technological.

Because the selection of instructional techniques is almost always a matter of free choice by each individual faculty member, new approaches to instruction will only be adopted widely if each faculty member is made aware of a particular innovation, becomes interested in it, tries it, evaluates the results of this trial, and if pleased with the results, adopts the approach more or less permanently. Very few university and college faculty members go through this process of adopting new approaches to instruction because their training and experience do not move them in this direction.

This is the case because there is a single more or less pervasive model of excellence in higher education—the prestigious research university. Faculty members who are successful in such institutions exphasize certain activities and patterns of behavior which are antithetical to seeking out and using information on new approaches to instruction. These patterns of faculty behavior are also not consistent with the requirement that the development of high technology education software is, of necessity, a *team* effort requiring the close, collegial cooperation of a variety of professionals.

As graduate students, most doctoral candidates focus their attention on becoming competent in one or more sub-fields of an academic discipline and on acquiring the skills needed to do research within that sub-field. They also learn, from their faculty mentors, that the primary function of university faculty members is to push forward the boundaries of knowledge in their chosen speciality by doing original research—the results of which will contribute to the development of a body of theory and which will be publishable in the most respected scholarly journals in their discipline. A closely related function is that of communicating the knowledge they acquire to graduate and undergraduate students.

The emphasis, then, is on highly *individualistic*, creative, intellectual work focused on problems defined by an academic discipline. Judgments of the quality and quantity of a faculty member's published work are made largely on the basis of evaluations made by specialists in his or her disciplinary sub-fields, many of whom are at other institutions of higher education. These judgments and those of his or her departmental colleagues are of primary importance in decisions on promotion and tenure, and to a lesser extent, annual salary increases based on merit. A faculty member's performance will be judged by the extent to which he or she conforms successfully to the behavior pattern described above. Departures from that pattern will be punished by negative evaluations.

The reward structure in prestigious research universities reinforces the highly individualistic, creative intellectual behavior patterns learned in graduate school.

The pattern of faculty behavior just described is dominant in most research universities. It is, indeed, one of the primary reasons for the preeminent status of our most prestigious universities.

Faculty at these institutions have made extraordinary contributions to the growth and development of human knowledge, and these contributions have been stimulated by the system just described.

Another major aspect of individualistic faculty behavior and institutional practice is that a single faculty member usually teaches a single course. This is neither the most efficient nor most effective way to develop packages of mediated materials which will be used widely. With respect to the use of mediated materials, it usually leads to "the not-invented-here syndrome" often expressed by an individual faculty member not involved in the development of the mediated materials as "those materials are not of sufficiently high quality to meet the educational needs of my students." (Translation: "That isn't the way I would do it, therefore, it doesn't meet my quality standards.")

If one cannot expect a technological revolution in higher education to begin at prestigious universities, is it then possible that other, different types of American institutions of higher education will make the changes necessary to move in new directions? With the possible exception of some community colleges, the prospects for this sort of change are not good. The reason for this is that even though there are relatively few prestigious research universities, **there is a single model of excellence, in the minds of most faculty members and administrators, and many of them exhibit all the patterns of faculty behavior found in the research institutions—without producing the quantity, or quality of publications produced by their counterparts at Harvard, Yale, Stanford, Berkeley, Wisconsin, Michigan, etc.*

These less prestigious American institutions are the ones which might be expected to adopt more effective and efficient approaches to instruction and learning. Most of them have not done so, however, and will not do so until alternative models of excellence emerge and are awarded societal recognition. Unless and until that happens most of these colleges and universities will continue to emulate the research institutions in behavior and values, if not in high quality scholarly output.

The suggestions which follow are intended to help these colleges and universities wishing to use the high technology mode of instruction overcome many of the foregoing barriers.

Policies and Practices Intended to Facilitate the Use of Instructional Technology

A number of changes in institutional policies and procedures can activate faculty to become involved in the development and use of instructional technology and at the same time, protect their jobs, and reward them for their efforts. Here are some general statements which might be included in a policy designed to attain the goal:

1. The faculty, students and administration of ______ University commit themselves to develop and use instructional technology whenever there is sound reason to believe such technology can improve the effectiveness and the efficiency of education. Since the content and the pedagogical objectives of all courses do not necessarily lend themselves to a technological treatment, major development efforts will be undertaken only after discussion by the parties involved and general agreement that such efforts should be undertaken.
2. No faculty member currently employed will be displaced by instructional technology.

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*All faculty members, regardless of the type of institution in which they teach, must be actively engaged in the pursuit of knowledge. This is the only way they can be sure they are providing current, accurate information to their students. This does not, however, mean they must be involved in "state of the art" research in their discipline.

3. Within the framework of #2 above, technological approaches to education will be used to:
    a. Extend the capacity of faculty to serve larger numbers of students more effectively; and
    b. Where possible and appropriate, to substitute for faculty members who are planning on leaving the institutions voluntarily; to fill vacancies created by death; and to begin new programs of courses for which new faculty would normally be employed.
4. Productivity gains derived from the development and use of instructional technology, if any, will be shared with:
    a. The faculty members who participate in course development and delivery;
    b. The academic department of schools to which the faculty mentioned in "a" are assigned; and
    c. The main funding source for the institution (e.g., the state, for public colleges or universities, and the trustees of independent institutions).
5. The faculty and the administration will, together, develop an institutional policy on ownership and use of mediated materials, the development of which have been completed with substantial institutional resources. This policy will define and protect both the institution's and the faculty member's rights and obligations. Among these are:
    a. The institution's right to recoup funds committed to development, in the event there is a substantial external market for the material produced;
    b. The faculty member's right to additional remuneration from external distribution, after the institution's capital investment is recouped;
    c. The conditions under which the materials may be used by the institution in the event the faculty member terminates his or her employment;
    d. The faculty member's right to ensure the continued accuracy and utility of the materials by the regular provision of institutional resources for annual revision of a specified percentage of the material (ten to twenty percent);
6. The extent, character and quality of a faculty member's contributions to the development of mediated materials will be given substantial weight in the tenure, promotion and merit review process; and
7. New means will be developed for assessing the efficiency of instructional techniques making heavy use of instructional technology.

While any one who has ever taught in a classroom would have grave doubts about the utility of the number of student contact hours* as a valid measure of anything, it is clear such commonly used measures can be major impediments to faculty members who might wish to develop and use high quality instructional software. To do so could reduce markedly their number of student contact hours.

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*Many American public universities are required to report the number of student contact hours (the measure of students × the number of credits for each course) to state governments. This statistic is used as a measure of efficiency.

Obtaining Development Capital and Measuring Efficiency

State and national government officials and individuals in the private sector, interested in stimulating the use of instructional technology, must create some regular funding mechanism to provide the capital necessary to develop and deliver instructional software, and they must be willing to re-examine and discard those measures of efficiency that prevent faculty and administrators from developing and using technologically-based approaches to instruction.

Encouraging Wider Use of Instructional Technology and Avoiding "The Not-Invented-Here Syndrome"

Individual faculty members generally have different areas of expertise within the same discipline, and one is likely to get a mediated course or unit in which the content is accurate and current if different faculty members handle that part of a course in which they have the greatest expertise. A second reason for actively involving as many faculty as possible in the development of a single course is that by doing so, one greatly increases the probability each of the faculty members will approve the use of the course. This should increase markedly the number of students who will use the course. Another way to expand even further the numbers of students and institutions using a course, is to leave out certain segments or sections of the course, but to suggest some ways that faculty in other institutions and departments might prepare materials for these segments—thus personalizing the course and increasing the probability these faculty and departments will use it. Using this "blank space" technique is one way of mitigating "the not-invented-here syndrome," and encouraging creative and individualistic faculty to give their own personal touch to software developed elsewhere.

To get an individualistic faculty member to become a full participant in a group of professionals working on a common project, one probably has to make it possible for that faculty member to work with the group on a full-time basis, long enough to complete work on the group project. Doing this should remove the faculty member from his or her workday university world and the system which reinforces individualistic behavior. An explicit orientation may also help the faculty member understand the differences between the normal pattern of faculty behavior and that required to develop packages of mediated materials successfully.

Such an orientation might explain that the effective development and use of instructional technology is basically a team effort which requires careful planning and the close cooperation of highly skilled professionals in several fields. First and foremost among these is, of course, the faculty member. The faculty member is the content expert responsible for ensuring that the course goals are realistic in terms of the entry level knowledge of the students; that the content is appropriate to both the students' entry knowledge level and the goals of the course, and that the content is both current and accurate.

While the faculty member must be treated as the first among equals, someone must be put in charge who has a firm understanding of the entire process, and can activate cooperative effort and who can resolve disputes in a creative and non-destructive manner. Whichever member of the team can best carry out this sophisticated leadership function, should be put in charge of the project. In any event, the faculty member must have the final word on content.

An orientation program during which the points just stated are made would help the faculty member adjust quickly to the new circumstances. This adjustment would be facilitated further if cooperative efforts were reinforced by group processes and financial rewards.

Both students and faculty must come to understand the advantages they can derive from the effective use of instructional technology; what the limits of this technology are; and when it should not be used.

The high technology, capital intensive, mode of course development described earlier can best be used for those courses and parts of courses in which the content is relatively stable, and the teaching-learning objectives are fairly clear. Basic, introductory courses in almost any discipline other than performance courses in theater arts, music and art are generally appropriate for this type of development work.

In these types of courses, the professor's role should be changed, by use of the high technology mode, to that of a tutor in comparatively small group, face-to-face interaction, rather than a presenter of material to hundreds of students assembled in massive lecture sections. The advantages of this type of faculty and graduate assistant role change should be obvious to both students and faculty.

The high technology mode probably should not be used for those courses or parts of courses in which the content is changing rapidly, or in which students and faculty are studying or doing research on problems for which there are no known answers. These would include some junior and senior courses and a good many graduate seminars. One could, however, probably make a very good case for the high technology development of introductory research methods and statistics courses normally required in many graduate programs in the physical, biological, and social sciences, and the full range of courses in many professional masters programs.

Conclusion

Although some university-level instruction may not be suited to the development of sophisticated packages of mediated materials, American educators are making little effort to use instructional technology effectively, in their *regular programs*, in those areas that show great promise. The problems I've described are not insurmountable. They can and will be overcome, given initiative, imagination, commitment and cooperation on the part of the faculty, administration, students and those governmental institutions that supervise and provide funding for education.

The technology to improve both educational effectiveness and efficiency is now available. If educators do not reorient themselves quickly to take advantage of this technology, private industry and new types of non-profit educational organizations will do so.

Section V

The Telecourse Student/Viewer

Introduction

Article 27
"Telecourses: The Audience" by Kiki S. Munshi

Article 28
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Article 29
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Section V

The Telecourse Student/Viewer

Introduction

Who takes telecourses? Who watches the programs produced and broadcast as parts of courses by television? Many people are interested in the answers to these two questions, including educators, television station personnel, and publishers. Educators want to know what it is that attracts students to telecourses: is it the convenience, the excitement and interest that the television medium can lend to learning, or maybe just the novelty of the system? Television leaders, looking for ways to serve their audiences and attract new viewers, also want to know more about viewers who watch telecourses. Since telecourses include texts and other books, publishers too want to know more about telecourse students.

The articles in this section report some of the characteristics of telecourse student/viewers, but also help to identify some unanswered questions about this group of learners.

Munshi, in Article 27, begins her discussion "The striking fact about the 'telecourse audience' is that it is not one: it is many." After surveying the results of many studies, she concludes that, while there are some characteristics that seem to be generally true of all telecourse students, deeper analysis reveals distinct subgroups. Telecourse students vary by the region where the telecourse is offered, by the course in which they are enrolled, and by the institution from which they are receiving credit.

Many schools offering telecourses have conducted surveys of their own telecourse student populations. Examples of two such studies are included. The Dallas County Community College District report (Article 28) summarizes the characteristics of students enrolled in that institution's telecourses over a six-year period. The courses offered were largely in the general education category. Lane Community College in Eugene, Oregon, surveyed students enrolled in telecourses offered as part of its curriculum between 1979 and 1981. The course topics included business, child development, consumer education, health, and mathematics. Article 29 by Aspinwall-Lamberts describes the profile of the students, their motives in taking telecourses, and their opinions of the courses.

Many research reports from staff at the University of Mid-America (UMA) have contributed greatly to the fund of information on telecourse students. Laurence Brown, formerly a research specialist at UMA, recently reported on an especially important longitudinal study of State University of Nebraska telecourse students. This report, included as Article 30, examines the issue of whether or not telecourses were gaining enrollees at the expense of on-campus enrollments. By exploring the educational activities of a group of students for a number of years after enrolling in a telecourse, the study also examines possible effects of telecourses taken by these students on subsequent educational endeavors. The results of this study may help to alleviate some faculty fears that telecourses are a threat to on-campus enrollment.

During the 1960s and 1970s, telecourses were often included in the college curriculum under the general heading of alternative education. As such, it was hoped these courses would improve access to higher education for groups and individuals not then being served by traditional education especially those from the lower socioeconomic groups. In fact, telecourses did attract "new" students, but not from the lower socioeconomic groups expected. Rather, the "new" students were middle-class adults, who seemed to feel that they were too old and too busy to enroll in full-time programs on campus. Waters (Article 31) explores the implications of the fact that both the British Open University (BOU) and American television "distant learning" programs have apparently not served the needs of disadvantaged students. It appears that telecourses, as offered by the BOU and American institutions, require a high degree of motivation, ability to study independently, and adequate learning and study skills. Students not having those characteristics, no matter what their age or socioeconomic status, will have difficulty succeeding with telecourses. The problem has implications for telecourse producers and designers as well as for educators offering telecourses: Can the special needs of so-called "disadvantaged" students be met through distance education, and if so, how?

Article 27

"Telecourses: The Audience"

by
Kiki S. Munshi

The striking fact about the "telecourse audience" is that it is not one; it is many. The student in a Bible studies class in Hattiesburg, Mississippi, the nurse taking a course in the use of a child abuse assessment scale in Denver, and the part-time undergraduate enrolled in American History I in Texas illustrate some of the many ways telecourses are used in the educational world.

During the course of this project two possible approaches to these audiences emerged. The first was by category or type of telecourse. The second was by type of institution. In this section we deal with both approaches even though they are, essentially, simply two different ways of dividing the same audiences. Our reason for doing so is because the first seems to raise the most interesting questions, but our data is primarily for the second.

Telecourse Audiences by Type of Telecourse

We have identified four categories of telecourses, each of which seems to be tied to a different audience profile. These are (1) Continuing Professional Education, (2) General Interest, (3) Core Requirement Courses, and (4) (somewhat anomalous) Other. Categories 2 and 3 overlap to a degree but they present real differences to broadcast stations and, we feel, probably will require a substantially different type of audience assessment. There is no discrete category for upper division courses because the incidence of those types of telecourses has, at least until the present, been low. Lower division electives are included in the General Interest category.

1. *Continuing Professional Education.* These courses are directed at practicing professionals. These include doctors, nurses, lawyers, engineers, and teachers, among others. Such courses could also provide skills training for employed nonprofessionals (secretaries, assembly line workers, etc.), but we have found little indication that this occurs with the use of broadcast television.[1]

This project has no demographic data on professionals enrolled in telecourses or enrolled in courses with a telecommunications component. It is possible, however, to pose some probable characteristics of such an audience, drawing them from current knowledge about members of various professions.

These would be: Professionals enrolled in further education are generally highly motivated (by a need for the knowledge offered in the course or for the certification contingent upon successful completion) and are accustomed to studying in a post-secondary environment by virtue of

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Kiki S. Munshi was Project Coordinator for SCEPAL and is author of the monograph resulting from that project.

From Kiki Skagen Munshi, *Telecourses: Reflections* '80, pp. 9–16, 1980. Reprinted by permission of the Corporation for Public Broadcasting.

[1] The University of Southern California offers some secretarial skills courses over their ITFS system, and a number of industries offer in-service training with video components. Some proprietary schools also use closed circuit or in-house video systems.

their professional training. With rare exceptions they would be older than an average undergraduate student. They are often employed and, if employed, in middle to higher income brackets. Sex ratios are probably proportionate to those of their profession.

> Needed Research: *What are the characteristics of individuals enrolled in continuing professional education courses, and do they have any relationship to advancement within the fields? Would the knowledge of this relationship aid in equalizing participation in a profession on the basis of sex and ethnic background?*

Each professional group comprises a discrete audience. This audience is numerically limited, easily identifiable, and individual protestations to the contrary, probably able to pay for continuing education. The subjects/programs in which they would be interested are unlikely to have broad appeal for the general public and, therefore, the prevailing practice of using nonbroadcast systems for the delivery of continuing professional education will probably continue.

Teachers are sometimes exceptions to this profile. Many of the courses they take are specific to their profession, but they also enroll in general interest courses in order to maintain certification or to progress on a salary scale.

2. *General Interest Courses.* We have defined general interest courses as those in which the television programs appeal to a much wider audience than the enrolled student population. This is not to argue that there are no casual viewers for other telecourses. There are, but no one knows how many unless they show up on the Nielsens or on Arbitron ratings (or are the subject of special and expensive surveys), and the programs for core requirement courses do not generally do so. The programs in this category often do.

These courses include both courses made *from* television (wrap-around courses) and courses made *for* television. The wrap-around courses, as we noted earlier, are based on a major series, are the recipients of extensive publicity efforts, and are aired in prime time. Their viewership in the first airing is many multiples (up to 250) of the number of enrolled students. The courses *for* television that attract such relatively large audiences, according to our informants, have been in self-improvement or "how-to" areas. *Designing Home Interiors* and *The Consumer Experience* are two of these.

General interest courses often—usually—carry credit but do not usually carry core requirement credit. We hypothesize, therefore, that an individual's interest in a subject is a determining factor in enrollment in this type of telecourse and that demographic characteristics will probably reflect the types of interest each course represents rather than a more general "telecourse norm." This is, of course, only a hypothesis, but it bears on an important question of audience identification.

> Needed Research: *Is the "telecourse audience" defined largely by the medium or by credit requirements/noncredit requirements and/or interest? Is all or any section of this audience a finite pool with a proportionately small amount of change in overall numbers each year or is it renewed each year in the manner of an undergraduate student population?*

3. *Core Requirement Courses.* These are courses *for* television on subjects required for the completion of a degree (usually an AA) or for the completion of lower division requirements. These courses are the basic building blocks of a general education—American history, psychology, astronomy, and so on—and attract relatively large student audiences (up to several hundred per college per showing), particularly in junior and community colleges. They do not normally attract

very large general audiences and are usually shown in fringe-time, although a number of telecourse producers hope that with continually improved programs, they will move out of this time "ghetto."

4. *Other*. This group includes noncredit courses composed of any of the above, G.E.D., or similar basic secondary-school-level skills courses, upper division courses attracting small or specialized audiences, and short workshops. One respondent at an educational institution indicated that he wished to experiment with noncredit television courses, but in no others was there any mention of their use, nor was there mention of credit courses that were offered unsuccessfully for noncredit as well. A typical response was "If we don't offer credit, why should the student pay us for the course?" Given the widespread availability of the television programs and the fact that books for a course are normally accessible to interested individuals, this makes sense. If pay cable systems such as QUBE become more widespread or if courses are transferred to videodiscs, a means of generating revenue for offering institutions to offset their costs may also be developed. Until that time, noncredit television courses will probably remain a very minor part of the whole from the point of view of the educational institution. The stations may be in a different position since their concern is with total viewership rather than paying viewership.[2]

Although many station respondents expressed a belief that there was a sizable viewership above and beyond the students enrolled for credit in courses *for* television, we were able to find hard data from only one survey. The most pertinent was conducted by the University of Mid-America (Selection Research, 1978) and covered St. Louis, Missouri, South Dakota, and Iowa. In these areas one person in five had watched at least one telecourse program the previous year and remembered that fact. The responding population was more heavily female, was older, and had less education than the average in the telecourse-for-credit audience.

> Needed Research: *What is the size of the noncredit viewing audience for various kinds of telecourses? What do the figures indicate about the noncredit appeal of various types of telecourse productions? How high do these figures need to be for this kind of program to represent an attractive viewership to a public television station?*

The GED series by Kentucky are being used successfully in a number of areas but data on total enrollments are not readily available. TV is also being used as a basis for professional workshops but, again, we have no data on extent of use.[3]

Telecourse Audiences by Institution

The greatest amount of audience data that we do have is for general interest courses and core credit courses and can best be broken down by institution. This breakdown serves two purposes: it reflects the differing perception of audiences by each type of organization and it seems to indicate some differences between two- and four-year institutions and among types of programs.

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[2] The NASULGC and CPB surveys (Howard & Froke, 1979) found that most stations and, unlike our data, many educational institutions (NASULGC, 45.5%; AASCU, 26.2%) offered "noncredit courses." The CPB responses included series such as *NOVA* and *Wall Street Week*; the NASULGC survey did not define "noncredit course." We have, therefore, not treated them as telecourses.

[3] In some cases college/extension divisions have offered upper division or graduate credit for "wrap-around" courses. We have no data on possible differences among audiences for these, and we have very little data regarding their use.

The twelve television stations interviewed—both the PTV stations and the one commercial station—either had no demographic data on enrolled telecourse viewers or had received that data through colleges. One of the station respondents (KOCE-TV, Huntington Beach, CA) believed that the audience that watched telecourses was basically the same watching other PBS programs. Other station respondents felt that the telecourse audience they were trying to attract was significantly different from their regular audience. The PTV personnel generally saw their regular audiences as upper-middle class, well educated, and containing a preponderance of women. They drew a large number of children (because of *Sesame Street* and the *Electric Company*), skipped the teen-age group, and moved into a slightly older adult population.

Among the educational institutions, the most complete data were from those colleges that were also major telecourse producers. By and large, the junior and community colleges presented an audience that fit the "typical" telecourse profile. The description by the Dallas Community College District in its *ITV Close-Up; The First Six Years* is representative: telecourse students are about 30 years of age on the average with more than three-fourths employed full or part-time, a majority of whom are in white-collar occupations or are housewives. Overall, the sex distribution is about 60 percent female and 40 percent male, but this varies from course to course. The majority have family incomes over $15,000; more than 85 percent are high school graduates and over 50 percent have some college.[4]

Dallas also noted that over time the age distribution of their students has become bi-modal, peaking around twenty and again around thirty-one. In other words, more members of the traditional student-age population are taking telecourses. Both Miami-Dade and Tarrant County noted similar trends and added that the younger students, in general, performed more poorly in television courses than older students.

Over time a more even sex ratio in telecourses has been reported from a number of geographical areas. It is entirely possible that this is a result of a change in the subject areas of telecourses offered but we have not been able to examine this in detail.

Two other phenomena, reported at a number of junior colleges, call into question the assertion, held by most respondents, that telecourses appeal to a "new student" who would not otherwise have access to education. First, many telecourse students (up to 70 percent) in junior and community college telecourse programs are also enrolled in other, on-campus classes; second, the characteristics of the "part-time" and "evening college"—or even of the general college—populations at several institutions do not differ significantly from those of the telecourse students. Characteristics do differ from the traditional on-campus student population in that on-campus students are younger, more apt to be attending school full-time (although both these are changing), and more apt to be male for both two- and four-year institutions.

With two exceptions (Dallas and Kingsborough), the community colleges used both courses *for* television and wrap-around courses. Audience characteristics were not available from enough institutions on a course-by-course basis to try to test some of the hypotheses presented earlier concerning possible differences between students in each type of telecourse.

With the exception of the University of Mid-America, extensive data on demographic characteristics of telecourse audiences was not available from any of the four-year institutions surveyed. Generally, impressionistic responses from individuals point to a slightly older, slightly more heavily female, slightly higher income bracket student if we control for the few cases in which regular undergraduates were allowed/encouraged to enroll. With one exception, telecourses were offered by Continuing Education or Extension divisions and, again with one exception but not the same one, these divisions reported that telecourse student characteristics were "probably" about the same as those of other Extension or Continuing Education students. In general, however, data was sparse and uncertain.

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[4] It is interesting to note that this fits a general PBS audience profile in spite of strong feelings that the two audiences differ *and* some data to support those feelings. This is a large country, however, and the apparent conflict may be a result of the limitations of descriptive statistics.

Four-year colleges and universities tended to offer *only* the wrap-around courses unless the fees for purchase/lease and broadcast time of the courses for television were underwritten through state aid or a consortial arrangement. Among those institutions that we surveyed there was one exception to this pattern—Seattle Pacific University—whose offerings were primarily continuing professional education courses for teachers. These courses fulfilled state mandated requirements.

Where data on ethnic origins of students existed, black and Chicano students were either underrepresented in telecourses or present in numbers proportionate to their numbers in the general population.

This profile does not seem to be very different from the profile of adults engaged in non-media-based educational activities. Adults participating in instructional activities in Illinois (*Illinois. Joint Education Committee*, Sept. 26, 1978) were "younger, employed and affluent, in terms of family income and education levels. On the other hand, nonparticipants tend to be either older, less educated, unemployed, have lower incomes or some combination thereof." The Illinois profile, according to this report, paralleled findings in most such surveys. Since these reports pertained to the entire population, "younger" falls into the about-thirty telecourse age we have elsewhere characterized as "older" and this description may also be applicable to the average telecourse student.

Choosing Telecourses

To date the subjects offered through telecourses by educational institutions have been limited by the availability of existing instructional packages. In this section we shall briefly review how colleges and universities select the subjects they choose to offer, relate this process to their selection of telecourses, explore factors that make telecourses appealing to students and viewers, and outline the process by which decisions to produce telecourses have been made.

In the institutions surveyed, two general types of courses and criteria for selecting them emerged. The first was courses that were core credit requirements. These courses were determined by the institution for on-campus classes; telecourses needed to approximate the on-campus course in subject matter covered, length, and level of difficulty. The second was general interest courses offered, for the most part, in Extension divisions and evening colleges.

Regular noncredit, or noncore Extension courses seemed to be selected through a combination of intuition and factual information; the responsible individual normally read widely in his or her field, watched trends, noted past enrollments, and made informed guesses. For competent individuals this seemed to be a highly successful method of selecting courses. In this situation, numbers of potential students were often a prime criterion and courses that did not enroll enough students to cover expenses were likely to be dropped. Other reasons for offering a course included providing breadth to the institutional program, fulfilling either informal or explicit requirements, and taking advantage of available resources. The same basic criteria were purportedly used to determine which noncore credit telecourses were generally adopted or not adopted.

The most popular nontelevision areas of study for Continuing Education or Extension divisions of four-year institutions centered around business and the professions. The responses were remarkably consistent. "Business, Journalism, TV, Film, Social Sciences" (Temple). "Biggest enrollments in Education, Reading and Special Education; for undergraduates, Business" (Arizona State University). "Business, Education, Computer Science, Mass Communications, Criminal Justice" (Jackson State University). "Education, Nursing, Law Enforcement, some undergraduate courses" (Eastern Kentucky University). "Ninety percent are in Education, ten percent are in Nursing, Business" (Seattle Pacific University). Mary Walshok of UCSD expressed two aspects of course selection that may pose problems for telecourses: "Business, management, Physical Education are popular, but not every aspect of them. Tax courses, personnel, and investment are areas, for instance, that are now popular in business. Basic skills—writing, reading, math; career, life, and financial planning; probably sophisticated consumer courses; these go well, *but what is popular changes very rapidly* in Extension." An additional complication for telecourse adoption in these subjects is that many (real estate, for example) require modification of content from state to state.

The answers of our respondents from four-year institutions were consistent with data from other studies. A compilation of a number of surveys (Bruce Hamilton, "The popular approach to learning needs assessment; field surveys," ETS, 1976, cited in Lord, 1979) found that:

> In general adult women say they *want* to learn more about home and family subjects and skills, personal development, and public affairs. Men express interest in technical crafts, personal development, hobbies, and vocational subjects. But when asked what they *need* to learn, these same persons choose professional fields and vocational skills first. General education (liberal arts) subjects are a lower choice of either case.

The choice of noncredit or nonacademic courses in community colleges is subject to the same considerations. Some community college respondents, indeed, noted that students were turning toward career courses and away from liberal arts. For the most part, however, the courses that fill semester after semester at community colleges are those that are required for a degree, and telecourses are no exception. Community colleges indicated that telecourses that fit degree requirements were the most popular although the single telecourse that consistently secured the largest number of enrollments for both two- and four-year institutions was not a "core" degree requirement course. It was *The Ascent of Man*.

We identified a number of factors that might account for the appeal of a particular course or telecourse to students and polled institutions on them. These included the facts that: The telecourse contributed toward vocational advancement; was part of a degree requirement; offered an outstanding feature or a well-known individual as teacher; cost the student less than or the same as regular courses; was assisted by an institution's image.

A discussion of vocational appeal as a factor that enhanced telecourse enrollment was curtailed by the lack of courses. A number of respondents at both two- and four-year institutions indicated this would be important if courses were available. For some, those who are offering continuing professional courses in education, it was currently important. All respondents in four-year institutions occupied one of these two positions; some from two-year institutions, on the other hand, felt that vocationally-oriented telecourses would have little appeal to their student body. A 1976 survey of the use of television in both California two-year and four-year institutions of higher education, however, found that "considering only courses offered for *lower division* credit, the fields deriving greatest use of this mode of instruction were: Real Estate, Business, Art, and Home Economics" (California Postsecondary Education Commission, 1979).

The importance to students of a telecourse carrying credit toward a degree or a certification requirement was given a low rating by only two institutions. Both were four-year, had low telecourse enrollments, and labeled telecourses a "failure." This is clearly an important factor, for it indicates that as much as we would like to believe that Americans want education for enrichment, it looks as if enrichment alone may not be enough to carry major educational programs.

A majority of the respondents felt that the presence of an outstanding teacher or special aspect to a telecourse was not an important determinant in selection by students. The respondents who felt it could be or was important (5 of 17) were from areas that might be designated more sophisticated in terms of their general population—New York, Southern California, Phoenix, and Seattle. Three of these were four-year and two were two-year institutions. The majority perception, however, may be at odds with the appeal generated by Bronowski in *The Ascent of Man*, especially when *Ascent* is compared with the performance of other well-publicized wrap-around courses featuring less charismatic "big-name" narrators.

Most of the respondents estimated that cost *was* an important factor to telecourse students and that increases in fees (which were either slightly lower or equivalent to nontelevision courses) would be likely to cut their enrollments. It is interesting to note that student fees for a three-unit telecourse at the institutions where we conducted interviews ranged from nothing to $120.

A number of respondents believed that their institution's identity had a positive influence on telecourse enrollments, either because of identification with telecourses (such as Coastline) or a positive general image in the community. One (Temple) noted that its institutional identity and situation—in a ghetto area in Philadelphia—might very well hurt on-campus attendance and, by corollary, help telecourse enrollment.

One other factor was mentioned as important in the appeal of telecourses to students—convenience. This was not included in the original list because we were trying to identify items for this series that could be important in the identification and production of future telecourses. Three institutions, however, volunteered opinions that convenience played a major role in attracting students.

We asked the station respondents what steps, if any, would increase the viewing audience for telecourses. "More publicity" was a consistent response. Station respondents generally believed that the best way to provide more publicity was through existing college channels. Other responses included: more appropriate scheduling (1); building a program that carried over from one semester to another (1); and experimenting with shorter, mini-credit formats (2). When stations were specifically asked if "more interesting" programs would draw a larger viewership, the response was affirmative but tepid.

For comparisons's sake, we asked station personnel about their most popular general audience programs. The responses varied widely, as did their means of ascertaining who viewed what. Many used commercial ratings, others did not. No particular pattern emerged among those who did and did not do extensive surveys. Our responses ranged from "Upstairs, Downstairs," to "Wall Street Week," to music and performance. Some included *The Adams Chronicles* or similar series in a longer list but this was the only mention of a telecourse.

A compilation of series drawing the highest ratings over the past few years did include *The Adams Chronicles*. Table 1 lists the ten most viewed public television series.

Table 1

Top-Rated Public Television Programs*

Series Title	Nielsen Rating	Date of Rating
Nova	6.7	February 1977
The Adams Chronicles	5.6	March 1976
Masterpiece Theatre/ Upstairs Downstairs	5.1	March 1976
Masterpiece Theatre/ Lillie	5.1	March 1979
Nova	4.8	March 1978
Masterpiece Theatre/ Lillie	4.8	January 1979
Best of Families	4.8	October 1977
Nova	4.8	May 1978
Nova	4.6	January 1977
Evening with the Pops	4.6	July 1977

*From a periodic report, Office of Communications Research, Corporation for Public Broadcasting, May 1979.

In similar compilations for special programs (as opposed to series), National Geographic Specials occupied four of the five top places. This is consistent with surveys by the Corporation for Public Broadcasting which have found that science and nature are the topics for programs on which people indicate the greatest preference.

So many variables contributed to the success of any given telecourse that we did not attempt to determine individual most-popular telecourses. Similarly, a synthesis of data of "most requested but not available" telecourses was, after some consideration, placed beyond the purview of this project since (a) most institutions kept no such list, and (b) "available" also carries a qualitative judgment in that a telecourse may exist but not be considered suitable for use.

Decisions to produce telecourses follow different routes for the wrap-around courses and courses *for* television but in the end, both fall back either on potential enrollments and/or outside funding as bottom-line considerations. In either case, the decision is wrought with complexity, not the least aspect of which is the number of organizations normally involved: one or more stations, one or more educational institutions, and one or more publishers.

In wrap-around courses the programs are produced for general audience viewing. An educational component may or may not be included in the initial plans. The decision to make such a series is not based, however, on potential educational value or a place in a college curriculum; if such a series should meet educational needs (as perceived by the institutions that normally produce the educational components), it is a result of happy circumstance rather than planning. Further, it is not likely that producers of such series will rely to any extent on educational needs assessment for their initial decisions, because the measurable audience gain as a result of educational uses is minimal at best, and usually nonexistent.

To date, an educational institution, not the programs' producer, has usually created the print components in a wrap-around telecourse. The institution's decision, however, is not sufficient for action. Contractual arrangements with the owners of the series and with a book publisher (to produce materials and, perhaps, to provide "advance" money) must be completed before a telecourse for national distribution can come into being. Negotiating these has typically taken several months.

Courses produced *for* television are beginning to rely on systematic estimates of both the institutional and student markets. Producers survey required courses, existing telecourses, and conduct informal polls before making a decision to invest hundreds of thousands of dollars in a telecourse production. Recently some of these producers have worked in collaborative arrangement with textbook publishers. A major best-selling text is identified in a subject area and used as the basis for a course, adding its credibility and the momentum of its sales to the telecourse and, in turn, being supported by additional marketing, promotion, and use.

User institutions did not generally conduct questionnaire surveys of potential telecourse student audiences. Although some have been done by stations there did not seem to be great potential for questionnaire use in the future. They are expensive and there is a widely recognized gap between expressed willingness to participate in educational activities and signing up. This gap seemed applicable to surveys of specific courses in some of the cases we reviewed: in other cases, respondents were so divided on the types of courses desired that no clear direction emerged. Our and others' experience in this area does not bode well for the future: "The fact is that nothing done to date can tell us how many adults of what general types have how much interest in what kind of learning that can be assisted by how much and what kind of media use" (Lord, 1979).

The question of needs assessment is a difficult one. In a classic "market" sense, students' needs are being supplied insofar as telecourses are responsive to enrollment figures. These "needs," on the other hand, are determined by a number of outside factors and may or may not be those that are most important to the student in the long run. Nevertheless, given the massive rate of failure of needs-assessment attempts, a refinement of the existing means of determining which telecourses to produce may be the best we can hope for. This is not to say that needs assessment for developing new audiences is not necessary. It is simply to suggest that until we achieve more accurate results, it might best be tried in other, less expensive, areas of nontraditional and open-learning systems.

> Needed Research or Thought: ***Philosophical:*** *Who best determines the needs of a population—the population themselves or those individuals who may be in a position to assess needs most effectively?*
> ***Practical:*** *How do we motivate students—or anyone else—to pursue a course of study he or she doesn't feel is needed?*
> ***Philosophical:*** *Should we attempt to do so?*

It is probably fair to say that stations seem to have been more sophisticated than the educational institutions in their attempts to determine the general needs of their telecourse audiences. Both commercial and public stations conduct ascertainment surveys at more or less regular intervals. Some of these have been highly creative. Although few of them provide clear directions for telecourses, most do indicate areas that could be addressed by a more broadly defined set of "educational programs."

Future Audiences

As noted above, the audience profile for telecourses follows that of the audience profile for individual involved in most Open-Learning programs. Similarly, it deviates from the "new student" these programs were originally thought to have reached. Several respondents specifically noted the "new student" as a target for future telecourses. Others, however, have raised both the question of definition of "new student" for this purpose and the suitability of telecourse instruction for some of these learners. "If new students are defined as adults," writes Leslie Purdy (communication to the author, 1979) "with low access to higher education due to being housebound or fully employed, then telecourses provide a service. But if 'new students' are defined as 'high risk' students, then telecourses are the wrong route. Our experience, for instance, demonstrates that telecourses are difficult for people without college experience or who have trouble reading."

Most respondents to our question "Are there audiences or groups you feel you have not yet reached with telecourses and which you hope to serve in the future?" focused on smaller, more identifiable groups. Several individuals mentioned the need for upper division courses for people who wanted to continue beyond the A.A. Many others identified particular professional groups, often those with whom they had already had contact. These included bankers, dentists, law enforcement personnel, firemen, and nurses in addition to the general category, "professionals." Many respondents noted state-mandated education requirements for a number of the groups. Specific nonprofessional audiences included Spanish-speaking, prisoners, minorities, adult illiterates, and, mentioned by several, the elderly. There were no consistent, immediately identifiable differences between station and college responses on this topic.

The reasons, according to our respondents, these audiences had not been served to date revolved around their small size (their number may be great but they are small proportionate to the audiences normally commanded by open broadcast television), the cost of making programs/telecourses, and the lack of available air time. One knowledgeable individual also pointed out that telecourses require a long lead time—two to three years may elapse between the identification of a telecourse subject and the use of the finished material. Ned Glenn of Miami-Dade expanded some of these topics and provided additional problem areas:

1. Courses specifically designed to attract and retain selective minorities can limit other enrollments, for example English for Native Spanish Speakers.
2. Courses geared toward "developmental" skills are costly to produce and deliver and require intensive human follow-up to be successful, thus increasing the total cost of development and delivery.
3. Noncredit courses cost as much as credit courses to produce and deliver through television-based instruction. Credit courses, however, generate fees and FTEs which can be calculated as income from state funds, while most noncredit courses are funded directly from student fees. Beyond the cost consideration is the whimsy of topical course emphasis.

Through all the responses the felt need to serve large numbers of students—to produce "popular" courses—was evident. Glenn qualified his responses with a point that raises some as yet unanswerable questions.

> . . . regarding telecourse "popularity" . . . the question of semantics enters into the discussion. If "popularity" is equated with marketing and is measured in terms of numbers of students, as is the case in broadcast television, that would establish one set of courses. If, however, "popularity" was intended to be a measure of satisfaction for people engaged in the course, another set of courses would emerge. While not wishing to split hairs, I do believe that a criteria beyond pure numbers must be applied to any telecourse consideration. I would suggest a consideration of special interest groups as well as "everyman." (Communication to the author, January 1979)

Beyond the identification of "new" audiences, and the creation of materials for them, other means of extending telecourse use exist. One is to augment the existing telecourse audience. Another is to bring existing materials to groups that are not now using them. Perhaps the most exciting but also the most difficult would be to alter our current forms of financing and administering television-based education so that non-credit viewing elicits support in the same way that credit viewing now does.

> Needed Research: *How do we assess the quality and quantity of noncredit telecourse viewing? What basis could we use to provide support for producer/transmitter institutions for noncredit viewing, and who would provide the support? How do we find out which kinds of audiences can best be served by what kinds of information/education?*

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Article 28

"Telecourse Students in Dallas County"

One of the key elements in the development of any instructional system is an understanding of the students who will be enrolling. Since the beginning, DCCCD has compiled a good deal of information about the characteristics and demographics of the telecourse student. Included in the variety of data are telephone surveys, student questionnaires, computer print-outs of demographic information on students, comparisons between telecourse and on-campus demographics and characteristics, and special projects designed principally to obtain "typical student" profiles.

A Unique Population

While demographic characteristics of students enrolled in telecourses have some similarities to the characteristics of the larger student population, there is evidence that telecourses are generating a new population of students. For instance, the number of students who were taking only telecourses continued to grow as new telecourses were added. Increasing numbers of students have commented that they would not have been able to take college courses had it not been for telecourses because of personal commitments, job responsibilities, lack of transportation, or health difficulties. Thus, it appears that the telecourses are serving a group of students who would not otherwise be able to take advantage of college courses.

Many students who were enrolled in both telecourses and on-campus courses, indicated that they were part-time students. In addition studies have shown that over one-third of all television students carry twelve hours or more. These findings suggest that telcourses help students progress more rapidly through college.

Data compiled from various surveys indicate that the telecourse population is generally older, more likely to be employed full-time, and more likely to be aiming toward a four-year degree than the on-campus counterpart.

Some Typical Learner Characteristics

Age—Although there is a very great spread in ages, 16 to 80, and different age distributions from course to course and semester to semester, the average age for telecourse students is about 30. The distribution is usually bi-modal, with peaks around 20 and 31. In comparison, the largest group of on-campus students is between 19 and 20 years of age, and the average age is 27.

Occupation—More than three-quarters of all telecourse students are employed part-time or full-time, and if full-time housewives are included as workers, only a small percentage are unemployed. The majority are employed or occupied part- or full-time in white collar jobs and in homemaking.

From ITV Center, ITV Close-up: The First Six Years, Dallas County Community College District, 1978. Used by Permission of Dallas County Community College District.

Sex—Again, there is considerable variation in the male-female ratio from course to course. The ratios range from four-to-one to one-to-one. In the first three years and in the most recent year of telecourses in DCCCD, there were more female than male students. During the middle period, however, males outnumbered females. Overall, the six year distribution is about 60% female and 40% male; on the other hand, males have consistently outnumbered females in on-campus classes.

Race—Racial distribution among telecourse students is quite similar to that of the on-campus students. A typical semester would include approximately 78% Caucasian; 17% Black; 3% Latin-American; and 2% other.

Economic Status—The highest percentage of telecourse students have family incomes of more that $10,000 annually, with the majority exceeding $15,000.

Educational Status—More than 85% of all telecourse students are high school graduates. About 50% have had at least some college courses and about 10% have a four-year degree or higher.

Reasons for Enrolling in Telecourses—According to DCCCD surveys, the following are the most frequently cited reasons students choose open circuit telecourses:

1. Telecourses are more convenient.
2. Telecourses save time and money because there's no drive time.
3. On-campus classes are filled.
4. I cannot come, or I do not want to come, to campus for the course.
5. I prefer to study independently.
6. I feel I can learn more from a telecourse than the usual on-campus course.
7. Telecourses are more interesting than campus courses.

Viewing Habits

According to surveys of actual and preferred viewing days and times, the two rather closely coincide for DCCCD students. That is, the times lessons are on the air are the times students say they prefer to watch them. This overlap is particularly true of weekend broadcasts (Sunday mornings and Saturday afternoons) and middle to late evening times. Surprisingly, perhaps, so-called prime time (6:00 to 10:00 p.m.) is not a preferred viewing time, according to students. Although telelessons are repeated at least three times during a given week, on different days and at different times of the day, surveys show that few students watch a given program on the air more than once. However, a small but significant percentage preview or review telelessons on videocassettes in the college and public libraries. On the other hand, about three percent of the telecourse students do not have television sets at home and do their viewing elsewhere—the college library, for example.

Some students report that their families and their neighbors watch telelessons together, even though only one viewer is officially enrolled in the telecourse. There are also husbands and wives who enroll in telecourses together. Probably there are many more people who regularly view a given telecourse without enrolling officially than there are students officially enrolled for credit. While no community assessment has been made, the number of letters by regular and periodic viewers who are not college students indicates a larger audience than enrollment figures reflect.

Use of Student Support Services

As regularly enrolled students of a District college, telecourse students are entitled to the full range of campus services: counseling, financial aid, career counseling, job placement, health services, the bookstore, the library, and so forth. As telecourse students, they are entitled to another group of support services from the ITV Center: hotline telephone, newsletters, test center, special campus meetings, and so on. Studies indicate almost all telecourse students use some of these services. Certainly, most attend orientation sessions, use the bookstore, and receive newsletters.

However, fewer than half of all telecourse students use the hotline; fewer than half of these talk with an instructor by phone. Only a small percentage of students make appointments to see an instructor on campus, unless consultations are a required part of the telecourse. Nevertheless, most students indicate satisfaction with the amount of individual help they receive.

Attitudes toward Telecourse

The vast majority of telecourse students surveyed (ninety percent) expressed positive attitudes and opinions toward telecourses. The balance of students felt telecourses were not for them, at least at that time or in the manner they were then taught. Follow-up studies with dissatisfied students clearly indicate that telecourses, as presently constituted, are not for everyone. Some students lack the necessary discipline, motivation, or background; others have false expectations regarding the effort required to complete a college credit telecourse. Most students, eight percent or more, feel their goals or purposes for enrolling in a telecourse were fully achieved. And most say they would like to take additional telecourses. They claim to be willing to recommend telecourses to others. Since many students indicate that they heard about telecourses from friends and family, the claim is probably true.

Among the features of telecourses students like most are the convenience; the production quality of the telelessons; the valuable and interesting learning experiences presented, such as interviews with leading experts, on-location scenes, helpful graphic displays, and so forth. Further, students have high praise for the study guide; they like particularly the clear statement of the objectives of each lesson and the step-by-step study sequences. Generally, students also commend the organization of the learning system and the assistance of the on-campus instructor.

A student evaluation is routinely administered at the end of each semester. The forms are as nearly uniform as the telecourse elements will allow, and they call as nearly as possible for the same kinds of information and attitudes as those requested by on-campus student evaluation throughout the District.

The Drop-Out Student

Several studies have been undertaken to determine the reasons students drop out. Although the response rate from mail-back surveys has been low, the results have reinforced telephone canvasses and anecdotal findings from teachers. Ordinarily, students do not drop out because of dissatisfaction with telecourses. Instead, the pressures of jobs, families, and other personal problems are cited. Some students expect telecourses to be easier than on-campus work, and withdraw because they find they do not have the educational background or the time to complete a college course. A few admit that they lack the self-discipline and motivation to work independently. A few simply do not like learning alone, without interaction with teachers and fellow students.

Although a considerably higher attrition rate for home study courses—such as open circuit telecourses—as compared with normal on-campus courses is the national norm, the ITV Center has continuously sought to increase student success. The ITV Center's major efforts fall into three categories: (1) better faculty and counselor orientation and support; (2) better student counseling; (3) better communication systems with students. There is an on-going effort to inform faculty and counselors about the ways instructional television works, the demands it makes on students, and the advantages and the disadvantages of the system. Orientation meetings for new telecourse faculty and periodic sessions with the veteran instructors; visits at regular division meetings; *Open Circuit*, the ITV Center newsletter; and comprehensive manuals for telecourse management are regular features of this effort.

Sharing data about general student characteristics, the reasons students drop out, the reasons students fail, and the kinds of students which usually succeed, lead directly to better counseling for students before and after they enroll. Of course, this very counseling sometimes leads students to withdraw in order to seek a learning environment or style more suitable to their needs.

The communication between students and DCCCD (their teachers, their college, and the ITV Center) has steadily improved during the first six years. The original course offered little more communication than examinations and grade reports. With the founding of the ITV Center came the telephone hotline which now operates twelve hours a day, five days a week, and includes four telephone lines with a search capacity to other phones within the ITV Center if all four are busy. Faculty members keep regular office hours for phone-in and drop-in conferences with telecourse students, and they check the hotline regularly for messages. In addition, they monitor student participation and call or write to students who seem to be falling behind.

Since previous student records indicated a high correlation between success and attendance at an on-campus orientation, the once optional orientation is now required. The ITV Center provides outlines of topics and procedures, as well as support materials and other assistance to the faculty to aid them in conducting useful meetings. Typically, more than one orientation for each course is held on each campus so that students can more easily fit the meeting into their schedules. Even so, about twenty percent of the enrolled students do not attend. However, they must contact their instructors in writing or in person to continue in the course.

Article 29

"Telecourse Survey Results"

by
Julie Aspinwall-Lamberts

Introduction

Since spring term 1979, Lane Community College has been offering telecourses on a regular basis. The Consumer Education course was the first course using television as the primary instructional delivery mode to be offered to community residents. As this was Lane's first venture into telecourses, a study was conducted to gather information and opinions relative to the use of television as an educational delivery system. The results of this pilot venture were positive, and Lane continued to offer courses by television each subsequent term.

The telecourses were promoted by radio public service announcements, brochures, ads in local newspapers, articles in the student newspaper, and word-of-mouth. The "TV Week" section of the *Eugene Register-Guard* contained brief descriptions of each course module. The courses could be viewed on television or on the LCC campus.

Each course contained 18–30 modules of 30 minutes in length. A workbook containing a vocabulary section and pre- and postwatching activities was available for each telecourse. An orientation session was scheduled for each course in which instructors provided suggestions on how to take a television course. Students were expected to come to LCC 3–4 times during the term for test-taking. The instructors were available for office visits or student telephone conferences throughout the term.

From fall 1979 to winter 1981, LCC has offered 5 telecourses. They are:

- Introduction to Business
- The Drama of Child Development
- Consumer Education
- Your Health, Your Choice
- Mathematics for Modern Living

In addition, Cosmos, a television series presented on OEPBS, was aired fall term 1980 as part of the telecourse offerings. This course was composed of 13 one-hour video modules.

During this period, a total of 278 students completed courses in which the telecourse survey was distributed. This group represented 77.9% of the total number of students completing telecourses between spring 1979 and winter 1981. Each student in the identified courses was asked to complete a Telecourse Survey which sought information on the student's reaction to the course content, its delivery, the instructional materials, the pacing of the course, and the instructor's role.

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From Julie Aspinwall-Lamberts, *Telecourse Survey Results*. Reprinted by permission of the author.

Table 1
LCC Telecourse Offerings
Student Survey Response Rates
Fall 1979-Winter 1981

	Business			Development			Education		
Term	Final Comp.*	N	Response Rate %	Final Comp.	N	Response Rate %	Final Comp.	N	Response rate %
Fall 1979				10	4	40.0			
Winter 1980							9	7	77.8
Spring 1980	5	5	100.0	16	11	68.7	15	13	86.7
Fall 1980	12	10	83.3	16	14	87.5	22	5	22.7
Winter 1981	27	22	81.5	24	23	95.8	21	14	66.7
TOTAL	44	37	84.1	66	52	78.8	67	39	58.2

*Final number of students completing the course.

Information was also gathered on how the student learned about the course, why the student decided to enroll in a telecourse, and general suggestions or concerns that the student had about telecourse offerings. Of those completing telecourses during this period, 222 (79.9%) responded to the Telecourse Survey. Table 1 presents information on the response rate for the courses offered from fall 1979 to winter 1981.

The remainder of this paper presents the composite results of student responses to selected core questions on the Telecourse Survey. All of the survey items were not included in this complete study due to the differences in course materials and course content between the six telecourses. Complete survey results for each of the individual telecourses are available in the Office of Program Evaluation or from the Telecourse Coordinator.

Background Information

The students were asked to volunteer information on their sex, age, and employment status. Of the respondents, 77.5% agreed to provide all (or part) of these data. Approximately 45% of these respondents were women and approximately 48% were 30 years old or less. Almost one-half (47%) of these students were full-time students at the time they completed the telecourse.

Of the 278 students completing the telecourses, 222 (79.9%) responded to the Telecourse Survey. Of these people, 197 (88.7%) had taken other classes at LCC. The majority (90.9%) of these students were enrolled in another LCC course during the term in which they took the telecourse.

The students learned about the telecourses in a variety of ways . However, the majority of respondents (56.8%) indicated that they first learned of the course through the college's mailing efforts (e.g., college catalogue, brochures). Table 2 presents data on the sources of information used by the students.

Various reasons were given by the students for enrolling in the telecourses. These reasons are presented in Table 3.

Cosmos			Health			Mathematics			Total		
Final Comp.	N	Response Rate %	Final Comp.	N	Response Rate %	Final Comp.	N	Response Rate %	Final Comp.	N	Response Rate %
									10	4	40.0
									9	7	77.8
			10	10	100.0				46	39	84.8
36	34	94.4	5	5	100.0	6	5	83.3	97	73	75.3
			38	34	89.5	6	6	100.0	116	99	85.3
36	34	94.4	53	49	92.4	12	11	91.7	278	222	79.9

Table 2

Sources of Information About LCC Telecourses

Source	Students Using N	%
Mail	126	56.8
Friend/relative	36	16.2
Television	11	4.9
Newspaper	9	4.1
Other (counselor, instructor, other LCC personnel)	39	17.6

Table 3

Reasons for enrolling in the LCC Telecourse

Reason	Student Response N	%
To earn credit toward a degree	98	44.1
General interest in subject	74	33.3
Professional improvement	31	14.0
Other (teacher certification, required for program, other classes not available)	19	8.6

Table 4

Reasons for Selecting Telecourse Rather Than an "On-Campus" Course

Reason	Student Response N	%
Offered at more convenient time	130	58.6
Transportation problems	117	52.7
Liked idea of taking course at home	84	37.8
Child care problems	40	18.0
No similar class available on campus	21	9.5
Other (on-campus courses full, more flexibility of time, liked individual approach, distance from campus)	28	12.6

Table 5

Types of Instructor Contact

Contact Type	Student Response N	%
Office visits	120	58.0
Telephone	109	52.6
Class/seminar meetings	90	43.5
Other (exams, mail)	29	14.0

The telecourses were offered at times when other courses would have been available to the students "on-campus." Therefore, we were interested in finding out why students chose to enroll in a telecourse rather than a more traditional "on-campus" course. Table 4 shows the reasons given by students for selecting the telecourse offering.

The timing of the telecourses appears to be a major factor in selecting these courses over the "on-campus" offerings. This includes both the scheduling of viewing time on the television, as well as the ability to be flexible in viewing the modules on campus and in studying for the course.

Course Delivery Information

Almost all (93.2%) of the respondents said that they had direct contact with the telecourse instructor during the course. The types of instructor contact varied, but most of the students had "multiple" contacts with the instructor (e.g., both telephone contact and office visits). The types of instructor contact are shown in Table 5.

The modules were available for student viewing at the LCC Library. For some courses, they were also available at the Eugene Public Library and the LCC Math Resource Center. Also, the modules were often aired more than one time on the local television channels. This allowed students to view specific modules more than one time if needed. Of the respondents, 51.3% viewed a module more than one time. Often this was done to review specific information or to "pick up" parts that they had missed during the first viewing. The students liked being able to repeat a lesson in this fashion.

Table 6

Location for Watching the LCC Telecourse

Location	Student Response N	%
At LCC	128	57.7
At home	111	50.0
On the LCC Bus	4	1.8
Other (Eugene Public Library; work)	21	9.5

General Course Information

Of the respondents, 84.2% reported that the telecourse contained information which was of "higher-than-average" value to them. Only 14.4% of the students said that they had ever considered dropping the course. These students most frequently cited personal reasons (e.g., illness, job or home responsibilities) or difficulty with maintaining a viewing schedule as their major reason for thinking about dropping the course.

The students tended to watch the television modules both at home and at LCC. Table 6 shows information on where the students generally viewed the course.

As reported earlier, approximately 89% of the students had taken other classes at LCC. Of the respondents, 53.2% stated that the telecourse, when compared to "on-campus" courses, was better. The reasons most frequently given for this feeling dealt with the flexibility of the scheduling of their viewing and studying, as well as the individualized nature of the course.

Conclusions

The majority of the students (86%) said that they would recommend a telecourse to a friend. This response appears to reflect the positive reactions that the student had toward the telecourses.

The majority of the students liked the flexibility provided by the telecourse format. Of particular appeal was the ability to progress at their own pace and to repeatedly view individual modules if needed. The students also felt that the telecourses were offered at convenient times and that ability to learn "via television" helped ease some of their transportation, home and child care problems.

Most of the students enrolled in the telecourse to earn credits toward a degree or because of general interest in the subject. Since approximately 89% of the students had taken another LCC class, the telecourses have not yet reached a significant number of "new" students. However, this does provide the telecourse students with a basis for comparison. The majority of the students felt that the telecourse contained information of value to them and that the telecourse was better than "on-campus" courses because of the flexibility it provided the student.

Article 30

"The Impact of an Adult Distance Learning Program on Campus Enrollments"

by

Laurence A. Brown, Jr.

The University of Mid-America (UMA)[1] is a seven-state, eleven-institution consortium[2] formed in 1975, with a major goal being that of developing and delivering multi-media, college-level, high quality courses intended principally for distance learning by nontraditional adult students. Courses produced are, in most instances, developed by UMA through an inter-disciplinary team approach. UMA-produced courses—as well as courses produced elsewhere—are then offered to adults within the consortium states by means of statewide delivery systems. In Nebraska the UMA delivery system was, until 1979, the State University of Nebraska or SUN.[3] The SUN project, which was established as a part of the University of Nebraska System in 1972, was the original entity from which UMA, as a regional consortium, was developed. Non-consortium institutions are also able to utilize UMA-produced courses through the use of lease or sale agreements.

From its inception it has been the direct and clear intention of UMA to provide college-level courses to adults unable or unwilling to engage in on-campus study; to create a viable option to traditional postsecondary education for a nontraditional adult clientele through distance learning technology. Thus, UMA courses have invariably involved a multi-media approach in which one or more mass-media instructional elements (TV, newspapers, radio) and more traditional instructional means (printed texts, readers, and study guides) have been employed.

It has been documented[4] that enrollees in UMA state delivery system courses differ markedly from the traditional college student population in terms of certain relevant characteristics (age, freedom to engage in full-time study, etc.). Nevertheless, there has been a persistant concern within campus administrations that UMA may pose a serious threat to traditional institutions. That is, in the face of potentially decreasing enrollments, UMA may draw off an ever-increasing number of students who would otherwise be full-time students on campus. This concern is a real one for these beleaguered administrators and it is a concern that UMA must address forthrightly.

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From Laurence A. Brown, Jr., "The Impact of an Adult Distance Learning Program on Campus Enrollments," Presented at the Annual Meeting of the American Educational Research Association, New York, March 19–23, 1982. Used by permission of the author.

[1] UMA is funded principally by the National Institute of Education.

[2] UMA is, at present, comprised of the state universities in Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.

[3] SUN is no longer an entity. It's functions have been taken over by the Division of Continuing Studies, University of Nebraska-Lincoln.

[4] See e.g., Bryan D., and Forman, D.C. *Characteristics of SUN learners; First five offerings.* (Statistical Summary No. 4) Lincoln, UMA, 1977.

In order to examine the issue of whether or not UMA is gaining enrollees at the expense of on-campus enrollments it was decided that a survey would be conducted with enrollees in early offerings of SUN courses. SUN was considered the most appropriate UMA delivery system for this survey because it had conducted the greatest number of offerings and had enrolled the largest number of students.[5]

The question as to whether SUN enrollees opted for distance learning over on-campus enrollment served to engender other questions relating to early enrollees in SUN. Did those early SUN students subsequently engage in further adult education? If so, what kind and where, and did their SUN experience affect that decision? In retrospect, did each SUN enrollee consider the course experience to be worthwhile? In was deemed imperative that UMA address all these questions and seek to obtain reliable answers to convey to the various UMA audiences.

In spring 1978, the UMA Division of Research and Evaluation conducted a telephone survey of more than 300 persons who had enrolled in courses during the first three course-offering periods of SUN. The survey was undertaken in order to generate data that would permit UMA to provide reliable responses to the questions that reflect the concerns described earlier. This report describes the survey, sets forth the results, and discusses the findings in terms of their implications both for UMA and for traditional institutions of higher education.

Purpose

The principal purposes for the study were two-fold. First, to determine the degree to which early enrollees in the SUN program elected to take SUN courses rather than to enroll in traditional on-campus programs. And second, to obtain data regarding the effects of participation in a SUN course on enrollees' behaviors and attitudes toward continuing education. Although the first of these served to launch the study, the second purpose was seen as the more important study focus. This was due in part to the speculative nature of responses about the selection of SUN enrollment over other options, particularly in view of the time lapse since the respondents first enrolled. Moreover, the second purpose above was related to a vital concern of UMA: What has been the long-term impact on enrollee continuing education actions and attitudes from taking distance learning courses?

In addition, the study addressed several other related areas of interest. The findings and conclusions pertaining to these concerns are not, however, detailed in this paper in as much as they are ancillary to its purpose and focus. For a full treatment of all study findings and conclusions see Brown, L.A. *A Survey of Early SUN Program Enrollees: Pre/Post-Enrollment Decisions and Attitudes Regarding their Continuing Education.* (Technical Report No. 5) Lincoln, UMA, 1981.

Population and Sample

The population of concern in this study consisted of all persons who had enrolled in one or more SUN courses during the first three offerings of courses by SUN: Fall 1974, Spring 1975, and Fall 1975. The reason for limiting the study to this population was to provide a two to three year lapse

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[5] There were 4,382 enrollments in eight SUN course offerings through Fall '77. Within the same period the Missouri delivery system had 1,045 enrollments in five offerings and Iowa 638 in four. These were the only significant UMA consortium offerings and enrollments as of that time.

Table 1

SUN Courses and Enrollments for the First Three Course Offering Periods

Course	First Offering (Fall '74)	Second Offering (Spr. '75)	Third Offering (Fall '75)	Total Enrollment (By Course)
Accounting	410	134	116	660
American Economy	*	*	51	51
Classic Theatre	*	*	43	43
Consumer Experience		79	37	116
Freehand Sketching (non-credit)	*	*	265	265
Introductory Psychology	270	102	96	468
Learning Disabilities	*	*	354	354
Making It Count (Computer Science)	*	77	59	136
Total Enrollment (By Offering)	680	392	1021	2093

*Not offered

of time between the initial enrollment by each respondent and the inquiry associated with the study. It was felt that any measurement of significant positive effects of SUN course participation would require this much elapsed time.

Total enrollment in SUN courses during the first three SUN offerings, which constitutes the study population, was 2,093. Table 1 is a presentation of the courses available in each offering and the associated enrollments.

A random sample of 536 names (over 25% of the total enrolled) was drawn from the registration forms. Contact by telephone was then attempted with each person in the sample. Of the total sample, 197 (37%) either: (1) had phone numbers listed which had been disconnected; (2) had listed numbers now belonging to other persons; (3) were called three times, without success, at various times of the day and evening; or (4) were unavailable during the week of interviewing. The final survey sample of 339 consisted of 272 females (80%) and 67 males (20%). Occasionally a name was drawn from the second or third offerings which had been previously drawn. These persons were eliminated the second time and another name drawn. The 339 respondents actually accounted for 386 course enrollments (18% of total enrollments) for the three offering periods as shown in Table 2. The number of enrollments is larger than the number of respondents in the survey due to multiple enrollments by 41 students (during the offering from which the name was drawn). Two courses were taken by 35 persons and three courses by six.

It is apparent from the figures shown in Table 2 that each course was represented adequately in the sample in terms of enrollment percentage.

The demographic characteristics (sex, age, location, and occupation) of the survey respondents were compared with the demographic characteristic of the entire sample because the number of persons in the sample who could not be reached was sizeable. It will be apparent from such a comparison that the only notable demographic differences between the total sample (reflecting, due to randomization, the demographic profile of the population of enrollees in the first three SUN offerings) and the actual survey respondents were in terms of sex and age. A somewhat greater percentage of the respondents (vis-a-vis the total sample) were female. And there were fewer young respondents (under 30) and more middle-age respondents (41–50) than in the total sample.

Table 2

Comparison of Sample Enrollments to Total Course Enrollments Across First Three Offerings

Course (Times Offered)	Course Enrollment (% Total Enrollment)	Sample Enrollment (% Sample Enrollment)
Accounting I (3)	660 (31.5%)	125 (32.4%)
American Economy (1)	51 (22.4%)	10 (2.6%)
Classic Theatre (1)	43 (2.1%)	8 (2.1%)
Consumer Experience (2)	116 (5.5%)	23 (6.0%)
Freehand Sketching (1)	265 (12.7%)	45 (11.7%)
Introductory Psychology (3)	468 (22.4%)	81 (21.0%)
Learning Disabilities (1)	354 (16.9%)	62 (16.1%)
Making It Count (2)	136 (6.5%)	32 (8.3%)
Total	2093 (100.0%)	386 (100.0%)

Procedure

The questions in the questionnaire were open-ended so as to allow freedom in responding. Following the survey, response categories were carefully developed to ensure that all responses were reflected fairly in the data analysis.

Seven trained interviewers conducted the telephone interviews between 5:00 p.m. and 9:00 p.m. for a period of about one week. When there was no answer, attempts were made during the daytime.

Results

Item 1. First of all, what was your primary purpose in enrolling in a SUN television course?

When a respondent indicated willingness to cooperate—and only two refused—this question was asked regarding the student's motivation for enrolling. Although open-ended, a predetermined list of four categories was included on the questionnaire which could be checked if applicable. Later, teachers seeking certification credits were placed in a separate category. The results are shown in Table 3.

Item 2. Were you able to complete (the course enrolled in)?

This question was asked for each course the student was enrolled in during that offering period. Overall, 214 of the 339 respondents (63%) reported completing the course (or at least one of the courses) enrolled in. In terms of the 386 total course enrollments, 249 courses (65%) were reported completed. Table 4 shows the reported course completion rates.

Two things should be borne in mind regarding responses to this item. First, the responses are self reports regarding completion, and as such they may not truly reflect the "official" completion rate (i.e. credit or other recognition of successful completion of course requirements). Second, only 253 (66%) of the 386 courses enrollments were for credit, and thus "completion" is technically only applicable to the less than two-thirds of the enrollments that were for credit. Nevertheless, for the purposes of this survey "completion," like beauty, is "in the eye of the beholder" (here respondent), and it stands that 65% of the courses enrolled in were considered "com-

Table 3

Motivation for Enrollment

Primary Purpose	No. (%) Stating Purpose
Increase General Knowledge	122 (36%)
Personal Interest or Skill Development	110 (32%)
College Credit	48 (14%)
Prepare for Employment or New Career	26 (8%)
Teacher Certification	19 (6%)
Other Responses	11 (3%)
No Response	3 (1%)
Total	339 (100%)

Table 4

Course Completion Rates
(First Three SUN Offering Periods)

Course	Number of Enrollments In Survey	Survey Completion Rate*	Previously Documented Average Completion Rate for Three Periods**
Accounting I	125	64 (51.2%)	49.0%
American Economy	10	9 (90.0%)	71.0%
Classic Theatre	8	7 (87.6%)	***
Consumer Experience	23	19 (82.6%)	84.5%
Freehand Sketching	45	34 (75.6%)	***
Introductory Psychology	81	50 (61.7%)	***
Learning Disabilities	62	47 (75.8%)	***
Making It Count	32	19 (59.4%)	67.0%
Total	386	249 (64.5%)	

*Based on total (credit and non-credit) enrollments. (Disregarding the non-credit Freehand sketching course, 73% of enrollments were for credit.)

**Based on credit enrollments only (from official SUN records).

***Not available or, in the case of Freehand Sketching, not applicable.

pleted" by those enrolled. This self reporting is reasonably well substantiated as fairly accurate by the fact that the average credit course completion rate for SUN students across offerings is from 50 to 60%.

Item 3. Do you feel like the effort you put into that course (those courses) was worthwhile? Overall, 302 or 89.1% answered "Yes." Four others (1.2%) indicated "Yes" on one of two (or more) courses and "No" on the other(s). Thirty (8.8%) said "No" and three (0.9%) did not respond. The "Yes" percentage was somewhat lower for respondents in the Lincoln area (81%) and for those in the self-employed/managerial occupation group (78%). There was no significant sex difference, nor did any one age group deviate markedly from the overall response.

Some differences in response to this item showed up, as might be expected, between completers and non-completers. Making It Count showed the greatest difference with about 95% of the completers and only 77% of the non-completers stating the effort was worthwhile.

Item 4. If the SUN television course in which you enrolled had NOT been available, would you have enrolled in a classroom setting instead, either then or eventually?

Of the 339 respondents, 124 (36.6%)[6] said "Yes" to this question. In addition to its speculative nature, the last word in this question gave the respondent much leeway in voicing a positive response. Therefore, care should be exercised in how the overall "Yes" response is interpreted. Many of these people could not have gone to classes at the time they enrolled in the course due to younger children in the family, etc., but may have done so *eventually* when those children reached school-age. Some "Yes" respondents indicated their responses were conjectures.

There were noteworthy differences in the patterns of response to this item based on sex, age groups, occupation, location, and reasons for enrolling. Each is analyzed below:

a. *Sex:* A slightly higher percentage of females than males stated they would have enrolled in a classroom instead, perhaps because more men than women hold full-time jobs. About 30% of the men and 40% of the women replied affirmatively.

b. *Age:* The percentage of affirmative replies dropped markedly among those over 50. Whereas the younger age groups averaged about 46%, the 51+ groups averaged only 18%.

c. *Occupation:* It is important to look at occupational group response patterns because of the educators (18% of sample), most of whom enrolled in Learning Disabilities. Their 67% positive response skewed the results dramatically. (Sections of this report will analyze data with Learning Disabilities students completely removed, e.g., see footnote page 251.) Occupational groups other than educators provided a 31% positive response.

d. *Location:* Omaha residents provided the highest affirmative response (43%). From those in the less populated western part of the state (where other postsecondary options are less accessible) it was 30%.

e. *Primary reason for enrolling:* As would be expected, those seeking college credit, or who eventually wished to transfer into a University or college, as well as those seeking teacher certification, were more likely to enroll in a classroom if SUN had not been available. These groups averaged a 73% affirmative response. Those who enrolled for more general reasons or to prepare for employment averaged only 29%.

When the responses to this question are analyzed on a course by course basis, 64% of those enrolled in Learning Disabilities indicated they would have chosen a classroom setting. All of the other courses, when averaged, had a 28% affirmative reply, with Making It Count (Computer Science), Freehand Sketching, and Classic Theatre the lowest with percentages around 25%.

There were 208 (61.3%) "No" responses and seven (2.1%) who did not respond.

Item 5. Where is the most likely place you would have enrolled? At what school?

This question was asked of the 124 respondents who said "Yes" to Item 4 above. Statistically, it is useful to look only at the overall results, in view of the small numbers of respondents in various categories. Table 5 displays these results.

Item 6. Why is it you would not have enrolled somewhere else?

This question, asked of the 208 persons replying "No" to Item 4, was included to investigate, albeit by self-reports, why people enroll in distance-learning programs rather than in traditional classroom courses.

[6] This percentage is reduced to 33% when enrollees in the Learning Disabilities course are not considered.

Table 5

Likely Enrollment Setting Had SUN Not Been Available

Institution or Program	No. of Respondents (% of Total)
University of Nebraska—Lincoln	26 (21%)
University of Nebraska—Omaha	35 (28%)
Other 4-year institution in Nebraska	35 (28%)
Two-year college in Nebraska	15 (12%)
Out-of-state institution	5 (4%)
Miscellaneous (continuing education, extension, or high school adult class)	7 (6%)
No response	1 (1%)
Total	124 (100%)

Overall, the responses were: (1) the general inconvenience of classroom courses—26%, (2) the distance or lack of transportation—26%, (3) the lack of time—14%, (4) job or home responsibilities—14%, (5) the ease of taking or enrolling in a SUN course—5%, and (6) other reasons—11% (including parking problem, course not available elsewhere, etc.). No response was given by 4%. The following are some of the demographic differences in these responses.

a. *Sex:* A greater proportion of females disliked the distance to the classroom (31% versus 11% for the males) while more males lacked the time necessary for classroom instruction (27% versus 11% for females).

b. *Age:* Age had little noticeable effect on reasons for not enrolling in a classroom course instead of in a SUN offering.

c. *Occupation:* Homemakers, comprising 28% of those in the sample stating their occupations, had a variety of reasons for not enrolling in a classroom course. Surprisingly, only 11% cited home responsibilities. Nearly 60% of the homemakers gave as reasons the general inconvenience (21%) and distance (38%). Fifty-six percent of the educators cited inconvenience as their reason for not enrolling in a classroom course. The other occupational groups provided too few responses for comparisons.

d. *Location:* Understandably, respondents in the more rural areas cited distance as the most important reason for not enrolling elsewhere. For those in metropolitan Omaha, the major reasons for not enrolling elsewhere were lack of time and the ease of taking a SUN course.

Item 7. Have you continued your education either by enrolling in classroom courses or by some other means since enrolling in a SUN television course?

Overall, 168 (49.6%) of the respondents said "Yes." Differences with respect to sex, occupation, and location were not significant (although females, students and educators, and Western Nebraska residents reported such continuation more frequently). In terms of age, those 50 and under responded "Yes" much more frequently than did those over 50.

The study provided evidence that the stated reason for enrolling in a SUN course has some relationship to the later continuation of one's education. Nearly 80% of those who enrolled for college credit and/or planned to transfer to another school later reported continuing their education. Less than 45% of those who enrolled for other reasons reported such continuation.

Table 6

Number and Percent of SUN Students Who Continued Their Education, by Course

Course	No. Enrollments In Sample	Number and Percent that Continued Education
Accounting I	125	50 (40.0%)
American Economy	10	7 (70.0%)
Classic Theatre	8	5 (62.5%)
Consumer Experience	23	16 (69.6%)
Freehand Sketching (non-credit)	45	16 (35.6%)
Introductory Psychology	81	46 (56.8%)
Learning Disabilities	62	41 (66.1%)
Making It Count	32	18 (56.3%)
Total	386	199*

*Total of 199 is larger than number who said they continued their education (168) because of multiple enrollments.

A course by course breakdown of responses to Item 7 shows marked differences as set forth in Table 6. Investigation of the relationship between course completion reports and responses to Item 7 shows that nearly 60% of course completers continued their education while only 37% of non-completers did so. A number of respondents reported that course completion gave them confidence in their ability to continue their educational experiences.

Item 8. Did your experience in the SUN television course directly influence your decision to continue your education?

This question was asked of the 168 persons who, in responding to Item 7, indicated they had continued their education, and 73 (43%) said "Yes."[7] Who were the respondents who were most influenced by SUN? The proportion of females to males was about the same as in the sample. Age, however, was related to the responses to this question, with positive responses generally increasing as age increased. Table 7 shows the influence of SUN on those who decided to continue their education, in terms of age. It is to be noted that while less than a third of those 40 and under who continued their education said that their SUN enrollment influenced this decision, over half of those over 40 did so credit SUN.

It would appear that geographic location had some effect upon responses to this question. Interestingly, the two extremes of population setting in the sample were comparable. About 58% of those who continued their education in metropolitan Omaha and nearly 55% of those in rural Western Nebraska said "Yes." In contrast, only 21% from Lincoln did so.

In terms of occupations, students and professional educators were—understandably—less inclined to credit SUN with influencing their on-going education. With most other occupational groupings (including homemakers, clerical, skilled or service, farm, retired, and unemployed), 50% or more credited SUN with influencing their decision to continue their education.

Enrollees in specific SUN courses showed no unusual response patterns to this question with one exception. Only about 20% of enrollees in Learning Disabilities stated that SUN had a direct influence on the decision to continue their education. This is not surprising given the general nature of the enrollment for that course.

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[7] The proportion of affirmative replies increases to about 52% when the Learning Disabilities enrollees are removed from consideration. These enrollees were, in large measure, educators who would presumably be influenced more by the continuing education requirements of their employment than by their SUN experience.

Table 7

Number and Percent of SUN Students Crediting SUN in Decision to Continue Education, by Age

Age	Number Continuing Education			Number and Percent Crediting SUN	
Under 30	31	77	25	8 (26%)	(32%)
31-40	46			17 (37%)	
41-50	52	84	46	29 (56%)	(55%)
51-60	20			10 (50%)	
61+	12			7 (58%)	
Total	161*			71 (44%)	

*Includes only those whose age was known.

Item 9. Where did you continue your education?

Of the 168 enrollees in the sample who continued their education, 149 (89%) responded to this question. Of these, 37 (25%) did so through on-campus enrollment in the University of Nebraska System; at UNL or UNO. Other four-year institutions in the state attracted 40 (27%), and 26 (17%) enrolled in one of Nebraska's two-year colleges. Another eight (5%) attended higher education institutions out-of-state. Ten (7%) participated in continuing education or high school adult classes. A sizeable number (24 or 16%) responded that they had enrolled in further SUN courses. Four others (3%) engaged in correspondence courses or self-study.

One of the purposes of this study was to compare responses to this question with responses to Item 5: (i.e., of those who stated that they would have enrolled in a classroom setting if SUN had not been available, what would have been the most likely place of enrollment). The breakdown of comparable responses to these two items, in terms of prospective (Item 5) and actual (Item 9) institutions is shown in Table 8.

As shown in Table 8, nearly as many sample members actually continued their postsecondary education in classroom settings following their SUN course experience as had speculated doing so (sometime) had SUN not been available. There are, however, marked differences in the two measures for some institution categories which may be summarized in this way: 1) actual, vis-a-vis prospective, enrollments in University of Nebraska System on-campus programs (UNL and UNO) comprised a considerably lower proportion of the total actual enrollments; 2) actual enrollments in other four-year institutions and in two-year institutions in Nebraska were, however, a much higher proportion of total enrollments than was true with prospective enrollments; and 3) actual enrollments both in out-of-state institutions and in miscellaneous classroom settings (continuing education, etc.) were proportionally slightly higher than those projected.

The data do seem to provide some evidence that in at least one dimension—that of location or accessibility—the responses to Item 5 tended to be somewhat speculative. That is, although about as many sample members actually continued their education in classroom settings as posited that they would have done so without SUN, the locations of the actual enrollments differed markedly from those predicted. And the difference was largely in the direction of more localized or more accessible actual enrollments. For example, instead of enrolling in the more distant Universities, many enrolled in nearby state, private, or community colleges.

In view of the concern expressed about the specific impact of the SUN program on enrollments at University of Nebraska institutions, it is desirable to examine the Item 9 data with respect to the University of Nebraska System.

Table 8

Comparison of Prospective Non-SUN Classroom Enrollment and Actual Post-SUN Classroom Enrollment, by Institution

Institution	Prospective Enrollment (Had SUN not been Available)	Actual Enrollment (Following SUN Course)
Univ. of Nebraska—Lincoln	26 (21%)	15 (12%)
Univ. of Nebraska—Omaha	35 (28%)	22 (18%)
Other 4-year Institution in Nebraska	35 (28%)	40 (33%)
Two-year college in Nebraska or other 2-year colleges	15 (12%)	26 (22%)
Out-of-state institution	5 (4%)	8 (7%)
Miscellaneous (continuing education, extension, or high school adult class)	7 (6%)	10 (8%)
Total	123 (100%)*	121 (100%)**

*Does not include one non-response to Item 5.

**Does not include "SUN course," "Correspondence course," or "Self-study" responses, or non-responses.

In response to Item 5, 61 persons (49% of those who said that they chose SUN rather than a classroom setting) indicated they would have enrolled in one of the two campus programs of the University of Nebraska System. In comparison, 37 (25%) of the respondents to Item 9 reported that they actually enrolled in on-campus programs in the University of Nebraska System subsequent to their initial SUN enrollment. Thus, in terms of enrollment in University of Nebraska on-campus programs, about half as many SUN students actually enrolled in those programs as the number speculating such enrollment had SUN not been available.

Again, however, the conjectural nature of the responses regarding prospective enrollment should be recognized. Moreover, it seems likely that elements both of awareness and of social desirability influenced responses to Item 5. That is, given the speculative nature of the question, respondents could reasonably be expected to indicate prospective enrollment in the better known and more prestigious higher education institutions in the state. Similarly, it is likely that a larger percentage of those who decided to continue their education following SUN participation planned, initially, to enroll at UNL or UNO than the percentage actually enrolling in these highly visible and respected institutions. When, however, the realities of distance, cost, time, and perhaps academic requirements had been carefully considered by these responsibility-laded adults, a fair number could be expected to investigate and, ultimately, to opt for institutions closer to home.

The most notable facts regarding the impact of the SUN program on the University of Nebraska System enrollments would seem to be these: 1) over 10% of the entire sample of *adult* SUN enrollees enrolled in University of Nebraska on-campus programs subsequent to initial SUN enrollment; and 2) about 18% of the sample continued their education following initial SUN enrollment through enrollment in the University of Nebraska System (including those enrolling in later SUN courses).

It is important, as well, to examine the apparent impact of SUN participation on the whole of on-campus higher education in the state of Nebraska. Whereas 35% of the total sample thought that they would have enrolled *at some time* in a classroom setting in Nebraska had SUN not been

Table 9

Reason SUN Program Did Not Influence Decision to Continue Education

Reason	Number	Percent
Decided to continue before SUN enrollment	25	(41.0%)
Motivated or interested in continuing anyway	10	(16.4%)
Course taken unrelated to education plans	10	(16.4%)
Course taken for enjoyment or refresher only	5	(8.2%)
Course was easily accessible	2	(3.3%)
Desire to take courses of any kind	2	(3.3%)
Other reasons	7	(11.5%)
No response	33 (35.1%)	—
Total	94	(100.0%)

available, 33% *did*—within a few years of their SUN enrollment—actually enroll in an on-campus higher education program in Nebraska. And if out-of-state on-campus enrollments are included in the comparison, the percentages of prospective and actual enrollments are virtually identical.

Item 10. Why do you feel that your experience in the SUN program did NOT influence your decision to continue your education?

Of the 94 for whom this query was appropriate (i.e., they had continued their education but said that their SUN experience was not a factor in that decision), only 61 responded. Of these, over half (57%) indicated that they had already decided to continue or were motivated to do so apart from their SUN experience. Table 9 displays the responses to this item.

Items 11 and 12. Did your experience in the SUN television course discourage you from continuing your education either in the classroom or by some other means? If so, explain why?

The 171 persons who answered "No" to Item 7 (which distinguished between those who continued their educations after participating in the SUN program and those who did not) were then asked this question. Only nine (5% of those who did not continue their education) replied affirmatively. Four of these were enrolled in Introductory Psychology, three in Accounting I, and two in Making It Count.

The total frequency of responses was too small to categorize the reasons given by those responding affirmatively to Item 11. Many of these reasons were repeated later simply as reflections of a specific problem each respondent could not overcome. Most often the problem involved the awareness of a lack of interest or self-discipline. Only one respondent directly blamed the SUN program.

Item 13. What has prevented you from continuing your education?

This question was asked of the 162 who responded "No" to Item 11 and a total of 158 responses were received. The results are set forth in Table 10.

Table 10

Reason For Not Continuing Education

Reason	Number	Percent
Lack of time	69	(44%)
Family responsibilities	25	(16%)
Not interested in further study	13	(8%)
Not interested in college credit or degree	13	(8%)
Miscellaneous reasons (including distance/transportation)	12	(8%)
Only interested in the particular course(s) taken	11	(7%)
Too old	10	(6%)
Financial	5	(3%)
Total	158	(100%)

Conclusions

The purposes of this study were identified in an earlier section of this paper. Here, the principal survey findings that relate to each of these purposes will be discussed.

> *The degree to which early enrollees in the SUN program elected to take SUN courses rather than to enroll in a traditional on-campus program.*

About 37% of the sample (124 persons) indicated that had the SUN course(s) they enrolled in *not* been available, they would have enrolled in a classroom setting instead; either then or eventually. Actually, in relation to the concern that motivated UMA to undertake this study (i.e., the concern of Nebraska Campus administrators that SUN might reduce their own enrollments), the relevant number of affirmative responses is considerably smaller. When asked at what campus or setting they would most likely to have enrolled, only 111 (33% of the sample) responded in terms of a traditional postsecondary, on-campus setting in Nebraska. What do these findings mean when generalized to the whole population of SUN enrollees over the three offerings? Assuming that the sample was fairly representative of the 2,093 SUN enrollees from Fall '74 through Fall '75, it may be inferred that had the entire population been surveyed, from 580 (28%) to 790 (38%) would have posited attending a Nebraska on-campus postsecondary institution had their SUN experience not been available.[8] It should be kept in mind that these affirmative responses would have been speculative and would have had no time limit imposed. Forgetting this speculative element for the moment, what would the effect have been had *most* of those who would have posited attending a Nebraska campus in the absence of SUN done so in the same year? The *1975–1976 Yearbook of Higher Education* shows that the enrollment in the relevant Nebraska institutions in that year was about 70,000. Thus, if 700 persons who would have enrolled at a campus in the '75–'76 academic year had enrolled in SUN instead, campus enrollment would have been 1% less. The actual campus enrollment by these adults would likely have been much less and would—given the general nature of SUN enrollees as older, working adults with family responsibilities—have been spread out over several years. In addition, as will be discussed later, over 100 of those sampled (compared to 111 who indicated they *would* have enrolled) actually *did* enroll in Nebraska traditional on-campus postsecondary institutions subsequent to their SUN experience.

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[8] The 95% confidence interval for the relevant item responses in the survey, was calculated to be .327 ± .050, or from 27.7% to 37.7%

Therefore, the following can be said. Although a sizeable percentage of the sampled SUN enrollees did profess to have elected SUN participation instead of on-campus enrollment, the net overall decrease in Nebraska postsecondary campus enrollments was very slight, and may even—over the course of a few years—have yielded a slight increase in such enrollments (considering the "actual" versus "speculative" responses.)

The effects of participation in a SUN course on enrollees' behaviors and attitudes toward continuing education.

Behaviorists—and common sense—tell us that actions that produce gratifying results will tend to be repeated. Thus the place to start, it would seem, in looking at what the survey findings reveal in relation to this purpose for the study is to look at evidence attesting to enrollee satisfaction or dissatisfaction with the SUN experience. When asked whether the effort put into taking the SUN course(s) was worthwhile, about nine of every ten said "Yes." This high rate of positive responses may, of course, be inflated by a tendency to provide a socially acceptable answer to the interviewer. Other data obtained would seem, however, both to verify the high rate of positive responses as to the worth of the SUN experience and to indicate there was not a strong tendency on the part of the respondents to give only socially acceptable answers. One such source was the findings regarding course completion. Over 60% of the courses taken by the respondents were reported to be "completed." As shown in the report, this percentage is only slightly higher than completion rates reported by SUN for the offerings in question. And this higher reporting rate may quite easily be due to the fact that for many SUN course enrollees (particularly the two-thirds whose primary purpose in enrolling was simply for personal growth and development) "completion" was a personal rather than an academic matter. A person who enrolled in "Home Gardener" or "Accounting I"—even if for credit—might well consider the course to have been "completed" even if the academic requirements for credit were not wholly met, if the desired information and/or skill was achieved. It can be assumed that one's sense of having completed a self-imposed course of study is a fairly strong correlate with the degree of satisfaction one receives from the experience. Therefore, reported completion rates (particularly in comparison with the general completion rates of other self-imposed and independent distance-learning courses such as correspondence courses)[9] show a relatively—as well as absolutely—high degree of satisfaction with the SUN experience. Further evidence in this regard comes from responses (by enrollees who had not continued their education following their SUN experience) to the question: "Did your experience in the SUN television course discourage you from continuing your education (in any way)?" While this would seem to have been a good opportunity for non-continuers to pin the responsibility on a readily available scapegoat (SUN), only nine persons (5% of those not continuing their education) answered the question affirmatively. And when asked to explain why this was so, only one person blamed the SUN program, per se.

The data, when taken all together, attest to the fact that most SUN enrollees were satisfied with their experience in taking a SUN course and that the satisfaction tended to persist over time.

And what were the tangible impacts of this satisfactory SUN participation on later enrollee behavior regarding continuing education? Foremost here was the fact that nearly half responded affirmatively when asked whether they had continued their education following their SUN course participation. When those answering "Yes" were asked if their SUN experience had influenced the decision to continue, 44% again said "Yes." Notable here was that of those 40 years and older and those both in SUN's truly urban setting (Omaha) and in the mostly rural (and distant from most Nebraska college campuses) western part of the state, over half of those continuing their education were influenced by their SUN experience. It should be noted here that of those who continued, over a hundred (about 30% of the entire sample) did so at Nebraska traditional on-campus postsecondary institutions. This compares with the 33% of the sample who indicated they would have attended these institutions had SUN not been available. In view of its "actual" (albeit self-report) rather than "speculative" nature, the percentage of enrollees who continued their education in a Nebraska "on-campus" setting may well represent a net gain for enrollments in these institutions over the percentage of those who would actually have enrolled had SUN not been available. Of those who had said that their decision to continue their education was *not* influenced, by SUN and who responded to the query as to why SUN had *not* so influenced them, most gave reasons indicating they had already been motivated to continue prior to their SUN enrollment. In short, few—if any—of those continuing their education did so *in spite* of their SUN participation, and for nearly half of them that participation was a positive influence in the decision. Data addressing the issue of the nonenrolled participation of the sample in ensuing SUN course programs, shown in the survey, also attests to the continuing education behavior of these early SUN enrollees. All in all, the findings support the view that participation in a SUN course was deemed a worthwhile and satisfying experience for the great majority of those in the sample, and for many it was instrumental in encouraging them to continue their education—often in traditional on-campus settings.

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[9] Cf. Holmberg, B. *Distance Education: A Survey and Bibliography*, Kogan Page: London, 1977, p. 29.

Article 31

"Learning from the Open University: The Limits of Telecommunications"

by
Gregory Waters

When Harold Wilson first spoke about the Open University during an election campaign in 1963, he envisaged a "University of the Air" that would harness technological advances in the mass media to the service of higher education. Originally intended primarily for technicians and technologists, the University of the Air soon became a university that advertised a second chance for all adults who had left school at 16 or earlier and had been denied entrance to careers and professions limited to graduates of traditional universities as a result. Combining the best features of correspondence study with specially prepared films and tapes for broadcast by the BBC, the Open University is the world's most successful distance-learning institution, and perhaps the most important innovation in the history of higher education since the establishment of the land grant college.

Described by England's educational press first as a "pipe dream" and later as "the sort of cosy scheme that shows the Socialists at their most endearing but impractical worst" (*The Times Educational Supplement*, March 4, 1966), the Open University is today Great Britain's largest degree-granting institution, with an enrollment of over eighty thousand students. For American institutions considering ways to use telecommunications and other forms of new technology in the delivery of college courses, the Open University provides a fascinating model for study, both for what it has accomplished and for what it has not yet been able to achieve. Because of its size and the quality of its institutional research, the Open University is also an important source of information about the limits of the new technology, for as our British colleagues have discovered, the methods employed by the Open University do not work equally well with all types of students. They have found, for example, that relatively few disadvantaged students are attracted to the university, and those who are admitted have a difficult time coping with the demands of distance-learning. It is hard to say whether the problem is primarily one of class or whether the Open University's methods are not suitable for the poorly prepared, but the implications of such findings are quite important for Americans planning to introduce similar courses and delivery systems into their community colleges and universities. At the same time the Open University has found that attempts to apply the distance-learning techniques developed for adults to students under the age of twenty-one have not been very fruitful, and the university's Senate recently rejected a plan to

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lower the minimum age of admission from twenty-one to eighteen. With the development of PTV-3 and other recent innovations in televised learning, the lessons learned at the Open University have a good deal of relevance to American higher education today, and as we begin to make plans and chart new directions we are well advised to take advantage of this opportunity to learn from twelve years' experience in the area.

Before examining some of the research about the limits of the Open University model, a bit of background about the institution might be useful.[1] At present there are about four hundred full-time members of the academic staff located at the university's home campus in Milton Keynes, a new town forty-five miles northwest of London. They are divided into six faculties: the Arts, Educational Studies, Mathematics, Science, the Social Sciences and Technology. In addition there are almost 6,000 part-time tutors, many recruited from the teaching staffs of other colleges and universities, who operate 260 local study centers where students can go on an optional basis for face-to-face instruction. The tutors also comment on student essay assignments, grade papers and provide reassurance when needed. Thirteen regional offices supervise the work of the part-time staff, monitor grading patterns and allocate students to tutors while maintaining close relations with the full-time faculty and providing feedback about courses throughout the term.

Courses are produced at Milton Keynes for distribution in weekly units. Students receive these specially prepared course packages through the mail, along with notes on radio and television broadcasts, assignments and exercises, records and tapes. Course textbooks are usually standard titles made available in advance by publishers and sold in sets at local commercial bookstores. Open University courses are generally much more comprehensive than those in American universities and take about nine months to complete. Most courses carry one credit, though some, of shorter duration, offer a half-credit. To graduate from the Open University with a B.A. degree, a student must earn six credits; an honors degree requires eight credits. All work is done at home, and students generally spend twelve to fourteen hours a week on each course. Most students are also expected to attend a week of residential summer school for their first year courses, where lectures, seminars, lab work and live performances of music and drama are presented. Most students take one course per year, and about 20,000 are admitted each year. There are no requirements for admission, and over 40,000 Open University students have graduated to date.

One of the most innovative features of the Open University system is the concept of the course team. Unlike courses offered at conventional institutions, an Open University course is never created by a single faculty member. Instead, groups of academic and support staff combine their expertise to produce the multi-media package which forms the basis of a student's work. Teams vary in size from 30 members to groups as small as three or four. A team usually includes academic staff from the same discipline or several different disciplines, along with BBC television and radio producers, a member of the university's Institute of Educational Technology who advises on course structure, and a staff tutor who evaluates the course's requirements when it is first offered to students. An editor and designer assist with the production of written materials, and consultants from the field critique early drafts of each course. Experts are enlisted to participate in the radio and television discussions which are broadcast as an additional resource for each course.

The quality of Open University course materials is very high indeed. Pilot broadcasts and drafts of the written materials are tested on samples of students to assess the clarity of what is presented before the course teams approve final production. The educational supplements of the

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[1] Portions of this paper describing the general organization of the Open University appeared in the Summer 1981 issue of the *ADE Bulletin* in an article entitled "Where Writing Really Counts: Great Britain's Open University."

Times frequently review new material and members of various course teams openly discuss goals and production problems in the educational press as well as in *Teaching at a Distance*, the Open University's staff journal. Students and tutors are invited to comment on the course units as they work through them, and suggestions are incorporated into special broadcasts and supplementary materials issued throughout the year. Handsomely produced and attractively illustrated, the course units provide expert commentary on issues raised in the texts in a style that can best be described as a tutorial in print, one that stops occasionally to prod students with the sort of questions that might be asked in a classroom, followed by answers and a careful discussion of the main points. In many respects, reading the course units is like working with the notes of a master teacher open on the desk beside the text.

The part-time tutors play a vital role in the Open University system of distance-learning, since they are responsible for most of the direct contact with students. They are prepared for their work in the same way that students are taught in their courses, by correspondence materials. Although many tutors participate in one or two initial training sessions, most learn on the job with the help of an excellent manual, *Teaching for the Open University*. Drawing on the work of many modern educational theorists, the manual trains tutors to see distance-learning as an on-going process, and helps them overcome traditional, error-directed styles of grading. Tutors are shown that correspondence teaching requires a major adjustment on the part of the instructor, that marking a script which is returned to a student by mail is not at all the same as marking an examination paper or an essay which will be discussed later in a classroom. Tutors are encouraged to avoid the abrupt comment or curt style used by many university teachers, since the opportunity for an added explanation about a grade is simply not available when a student opens the envelope. Instead, they are taught how to make their comments constructive and supportive, to assist students in developing basic skills and forming views that are worthy of debate. At the same time they are cautioned against comforting students with higher grades than they deserve. The manual reprints several sample tutor-marked assignments from a variety of disciplines, to demonstrate the elements of the Open University's approved style, one that is humane and supportive, developmental in a concrete and immediately comprehensible way.

For many students, the Open University system of distance-learning seems to be working fairly well. Over the years three out of four students admitted went on to officially register for their classes, and of these eighty percent received some course credit. The high pass-rate is at least partially due to the process of continuous assessment, a somewhat new concept for higher education in Britain. It is perhaps also because of the careful manner in which courses are prepared and tested on small groups of students before they go into final production. It should not be assumed, however, that the relatively high pass rate indicates low standards, for the final grades in each course are determined by examination boards whose members are drawn from the faculties of other, more traditional universities, as well as from the Open University itself. The presence of outside graders, and the participation of faculty from other institutions is a means of insuring that rigorous standards are preserved and that the Open University's degrees will have the same academic credibility as those from traditional universities.

Yet as I indicated at the outset of this paper, not all students fare equally well at the Open University. Studies conducted by Alan Woodley and Naomi McIntosh of the university's Survey Research Department have shown that students from educationally disadvantaged groups do significantly less well than their counterparts from more advantaged social classes, and this, combined with the limited numbers of such students, has given many staff members cause for concern

(Woodley, 1979; McIntosh, Woodley & Morrison, 1980). For although admission policies at the Open University are "open" in the sense that no formal educational qualifications are required for entry, working class students make up less than ten percent of the total student population, compared with almost half of the nation's adult population.

Students who are admitted without the minimum qualifications required for entry to conventional universities are less likely to finish their courses and only three in ten will graduate (Woodley, 1979). While it is perhaps not surprising that students who had careful preparation fare better than those with no preparation, it does seem odd that no special provision is made for the disadvantaged. The low enrollment and high drop-out rates among working class students seem to call into question the Open University's stated mission of providing opportunity "to all those who, for any reason, have been or are being precluded from achieving their aims through existing institutions of higher education" (The Open University Planning Committee, 1969, p. 5).

From the beginning, the Open University has not been very successful in even attracting students from disadvantaged groups. As Walter Perry, the university's first Vice Chancellor put it, "Only about 10% of our applicants gave as their occupational category one which could, by any stretch of the imagination, be held to fall within the working class, and it seemed probable that the real proportion of working class applicants was less than 5%" (Perry, 1977, p. 143). Early applicants were generally from the high-grade white-collar occupations, especially teachers and other professionals without advanced degrees, and this pattern has for the most part prevailed. The situation has led many to question the "openness" of the Open University, and at least one writer has asked whether the university has gone far enough in meeting the challenges of its mission. Tyrrell Burgess, writing in *New Society* as early as 1972, predicted that the Open University would never be able to fulfill the egalitarian objectives of its founders so long as it was primarily concerned about its credibility and reputation as a university (Burgess, 1972). Lord Perry himself admitted that it was inevitable that the university's first students would be mainly well-qualified middle-class people who would gain salary increases and promotions on the strength of their Open University degrees. But Perry saw this type of student as being in the best long-term interest of the institution, since their drop-out rates would be relatively low and therefore the university would have a greater chance of surviving. "If we succeeded with them we would not only have gained the time needed to polish our methods so that ultimately they might work effectively for less well prepared entrants, but we would also achieve the academic recognition that would enable us to tolerate higher drop-out rates" (Perry, 1977, p. 144).

Lord Perry's hopes for academic respectability have been realized, and a significant proportion of the Open University's graduates have gone on to graduate work at other British universities. This year the Open University itself has begun an advanced degree program of its own. But the percentage of students from the working classes has remained less than ten percent, and only about three in every ten of them will graduate. As John Ferguson, former dean of the arts faculty put it, "Despite all our profession of openness, our courses really are from the first geared in to the grammar school student. We assume not merely literacy, but experience in continuous reading and continuous writing, not merely numeracy, but a considerable amount of sophisticated numeracy" (Ferguson, 1975, p. 151).

Many members of the Open University staff are now questioning whether it is time the institution changed some of its teaching strategies to meet more directly the needs of the educationally disadvantaged. Alan Woodley, for example, has suggested that the distance-learning methods might need to be altered slightly for disadvantaged students and regular meetings established to enable students to gain more support from their tutors and from fellow students with similar problems (Woodley, 1979). He argues that such students might profit from a generally more supportive study environment to help them overcome the isolation experienced in distance-learning, and recommends a broader range of courses that relate to and draw upon a student's life experiences. Woodley also believes there is a need for greater publicity among the working classes, many of whom have either not heard of the university or have inaccurate information about it. Yet even with such knowledge, Woodley contends, the great majority will turn off at the mere thought of entering a university unless the Open University becomes more responsive to their needs and more suited to their circumstances.

Other efforts are now underway to encourage local educational institutions to set up preparatory courses for the disadvantaged that begin after the student has been formally admitted in the early summer but before university classes begin in February. The topics included in these preparatory courses vary a good deal by region, but most include some training in study techniques, library research, report and essay writing and experimental methods. In the last few years the regional offices of the university have also been providing inquiry services that direct underqualified students to local Adult Educational Authorities for information about preparatory courses and other forms of remedial instruction before encouraging them to apply to the Open University itself. Subject to budgetary constraints, the university is also attempting to create preparatory materials that are course-based and self-diagnostic, building on a model developed by the mathematics faculty who have offered refresher booklets to their students for some time. Various other materials have been prepared, including a textbook, *Preparing to Study*, which covers the traditional areas of study skills and offers sample essays in several disciplines with tutor comments provided.

The problem of attracting and retaining larger numbers of disadvantaged students has been compounded recently by massive unemployment and increasingly higher tuition and fees. A full-credit course at the Open University now costs £120 (about $220), an increase of 79% in two years. It is estimated an Honors degree (eight courses) will cost £1100 in course and summer school fees, plus an additional £600 for books, travel and expenses. Higher fees mean that fewer students are being drawn from areas with high unemployment. "We're in danger of becoming the Closed University of the Southeast," the president of the study body recently complained.

In a nation where higher education is available to only about ten percent of the eighteen-year-old population, it is understandable why the Open University has been seized upon as a revolutionary concept. It also partially explains why the Conservative Government in 1970 asked the university to determine whether its methods, originally established for adults, would work equally well for younger people. A pilot scheme was established, and the university admitted 375 eighteen to twenty-year-olds in 1974, 553 in 1975 and 478 in 1976. It was agreed by the Department of Education and Science that the special admission program would be accompanied by a five year research project with the following objectives:

1. To test to what extent the Open University was suitable for students in the eighteen to twenty-year-old age group.
2. If the Open University was found to be unsuitable for younger students, to try to establish why and in what ways this was so.
3. By the use of data drawn from a variety of sources, to attempt to develop predictive indices of success and failure at the Open University.
4. To attempt to assess the level and nature of the demand for Open University places from this age group.

The results of this remarkable project have recently been published in a book called *The Door Stood Open* (Woodley & McIntosh, 1980), and in many respects the conclusions resemble those cited about in our discussion of disadvantaged students at the Open University. It was found, for example, that younger students fared less well than older students in their first year of study, with fewer finally registering for classes after being admitted (sixty-one percent compared with seventy-five percent), and fewer gaining credit for classes at the end of the year (sixty-three percent compared with eighty-one percent). A general relationship was found between age and progress: between the ages of eighteen and thirty the older a student was the more likely he or she was to successfully complete a course. This relationship held true even when the differences in educational qualifications were taken into account, though it was also found that younger students who survived their first year went on to do as well as other Open University students (Woodley & McIntosh, 1980, p. 254).

It is interesting to note that the pilot scheme attracted very few eighteen-year-olds; over half of the younger students were aged twenty, and two-out-of-three did not possess the minimum entry requirements for full-time degree courses at traditional universities. Woodley and McIntosh contend it was not so much that the basic content of the curriculum was inappropriate, but rather that the pressures of sustained part-time study taken together with other personal, financial and work pressures were simply too much. The researchers suggested that younger students were generally deterred from entering the Open University by the cost of tuition, by the number of hours of study required each week, by the length of time needed to gain a degree, by the compulsory summer school attendance for first year courses, and the limited range of subjects available for study. Their relatively poorer performance was partially explained by the fact that their studies were often affected by the major personal decisions they were making about their lives; many were just beginning careers, changing jobs and getting married, and it was felt that older students were less likely to be experiencing such changes and were more able to cope with them when they did occur (Woodley & McIntosh, 1980, pp. 254–255).

Woodley and McIntosh also suggest that younger students were more troubled by financial difficulties arising from establishing homes and starting families, and many did not realize the sort of time commitment Open University studies required until they were well into a course. Many apparently also had trouble managing their time and some did less well because of poor facilities for home study. The report concluded that the Open University as presently designed appears more suited for students around the age of thirty, when people are generally more likely to be settling down both in their lives and in their jobs.

The researchers were not willing to conclude that the Open University model could not work for younger students, but they did claim that in its current form it would not provide a real opportunity for such students. They felt that younger students could achieve a higher success rate if they were provided with grants for tuition and encouraged to become full-time by enrolling for two full-credit courses per year. This would have the effect of helping them to graduate in a shorter time and free them from work and financial pressures. They concluded their report with the following statement: "The younger students attracted to the Pilot Scheme tended to find the Open University a very hard road to follow. However, we would not conclude from this that distance education is inherently unsuitable for the younger age group. From what we have learned in this study we believe that a distance teaching system could be devised which would be more appropriate to the needs and circumstances of young people." (Woodley & McIntosh, 1980, p. 261).

As a postscript it should be added that the Open University's Senate recently defeated a motion to drop the minimum age of admission from twenty-one to eighteen, despite strong support for the measure among many faculty members. Supporters of the plan contended that by requiring entrants to be at least twenty-one the university was in effect discriminating against a group of people who were already adults. Opponents argued that the university's courses were designed for older students. (*The Chronicle of Higher Education*, February 24, 1982, p. 17)

While it is always dangerous to apply observations about an educational system in one culture to an educational system that is remarkably different in another, it would be foolhardy to ignore the lessons learned by the Open University as we begin to experiment with telecourses in America. What should our procedures be with regard to educationally disadvantaged students, for example? Should we be sure to provide special preparatory classes before they enroll in telecourses, or should we give everyone the same opportunity without making extraordinary arrangements? Shouldn't we at least carefully monitor the progress of disadvantaged students to determine whether special attention would be useful? Although it is expected that telecourses will eventually be more cost efficient than traditional approaches in higher education, the real cost might be borne by disadvantaged students who have less chance for being successful without special help.

The lessons to be learned from the Open University's younger student pilot scheme are perhaps even more worrisome, since many of our telecourse students are likely to be eighteen-to-twenty-year-olds. Yet with a more developed support system than that offered in Great Britain, our chances for success with this population could be significantly greater. With the help of counselors and closer contact with instructors, the personal problems that kept so many younger British students from completing their work could be more systematically resolved in America.

I think the research studies from the Open University discussed above are important enough to demand our attention, so that we avoid—at this early stage—problems that could significantly affect the appeal and the ultimate success of new delivery systems and technologies. It is possible that arrangements such as the ones I've briefly described or others like them could make a critical difference in the years ahead.

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Section VI

Evaluation of Telecourses

Introduction

Perhaps the most important question about telecourses is how well do they teach. The effectiveness of television for instruction was documented by many studies in the 1950s and 1960s. Summaries of these findings are reported in Schramm et al (1964),[1] Reid and MacLennan (1967),[2] and Chu and Schramm (1979).[3] Most of these studies were experimental in nature and focused on television versus lecture or other media for presenting particular information to a captive audience, usually in the classroom. These studies also looked at learning by students of all ages—children and adults. As instructional television has become a method of reaching "distant learners," the need for research studies has once again become important.

Using television for distance learning presents particular problems for researchers looking at instructional effectiveness. For example one way to evaluate telecourses is to compare them to on-campus courses. However, there are problems with this kind of research. It is difficult, if not impossible, to teach identical courses on campus and via television. Even if textbooks, course goals and objectives, and exams can be held constant, on-campus courses will vary with the teaching styles of instructors and other classroom conditions. Also, in most comparative research, students are not usually randomly assigned to campus or telecourse groups; ordinarily the choice is an individual one, made by students themselves on the basis of preference or availability. Thus, data which appears to show that both forms of instruction are viable may reflect the fact that students have selected the *form* of education they like and want to use. Furthermore, classroom instruction is now accepted almost without question, yet it is still necessary to consider whether the classroom is the best standard against which to compare the telecourse.

Despite the difficulties, many efforts have been made to evaluate distance education. The selections included in this section cover many years of research by disparate institutions. Research methodologies used in these studies vary widely in sophistication, but the findings tend to agree: When used as a part of a system composed of print materials, study and evaluation devices, and other instructional services, broadcast television is highly effective instruction.

One goal of some evaluative research is to explore the instructional potential of each component of a television course. The instructional merits of print and face-to-face media are better known, but conclusions on how and why television teaches have not yet been possible. Article 32 reports the findings of a University of Mid-America research report which evaluated pilot programs for a telecourse. Student performance on exam questions as well as their opinions of the

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1. Schramm, W., et al. *Abstracts on Research in Instructional Television and Film.* Vol. I. U.S. Educational Resources Information Center, ERIC Document ED 003 805, April, 1964.
2. Reid, J. S., and MacLennan, D. W. *Research in Instructional Television and Film.* Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of Education, 1967.
3. Chu, G. C., and Schramm, W. *Learning from Television: What the Research Says.* Washington, D.C.: National Association of Educational Broadcasters, 1979.

programs are reported. The report documents the importance of the video component as part of the course and provides a specific list of student likes and dislikes in instructional television programs.

Several selections are included which provide indicators of the results of telecourses in terms of traditional academic measures of success: course completion, final grades, and degrees granted. Since Chicago TV College offered traditional AA degree courses through television courses used in a distance learning mode, the overall results of that program are still significant. Article 33 provides a summary of the *Final Report of a Three-Year Experiment*, which compares student learning in telecourses with achievement in similar courses taught a different way. (In Section I, Article 6 also provides summary data on the achievements of Chicago TV College students). The results of another comparative study are found in Article 34. Here student performance in a telecourse in introductory psychology is compared with student performance in a similar campus class.

A different kind of comparative study was done at Lakeland Community College (Article 35). The purpose of the study was to compare the characteristics of telecourse students with students taking essentially the same introductory business course in daytime and evening courses on campus.

Evaluations of instructional television must also consider whether that medium can be equally effective with a variety of subjects. Clearly, television can present specific facts and demonstrate scientific experiments and findings, but how well does it present the abstract concepts of humanities courses? Upon completion of production of an introductory interdisciplinary humanities course by Miami-Dade Community College, the course coordinator, Richard Janaro, was able to conduct an evaluation of the whole course. The results of this study are reported in Article 36.

An important pool of evaluative data on telecourses has been compiled by the Dallas County Community College District. Every semester, information is routinely gathered regarding student performance and evaluation of each telecourse offered. A sample of one semester's findings is included in Article 37. This kind of institutional data collection provides the information necessary for long-term monitoring of telecourses and for making conclusions about the results of changes in the system by which telecourses are offered.

Any treatment of the topic of evaluation of instructional television must also look beyond specific course evaluation and consider some difficult policy questions. Is it possible to base institutional policy regarding instructional television on research findings? What kinds of evaluation should institutions conduct? From the extensive research conducted by the British Open University and the University of Mid-America, Aversa (Article 38) looks at institutional research practices and policies and discusses some complex and difficult problems.

Finally, telecourse research and evaluation have to be considered by agencies and organizations outside of educational institutions. Accrediting agencies and state offices charged with some kind of responsibility for public higher education are beginning to consider how to assess and evaluate an instructional system that is portable and serves off-campus learners. The introduction to a proposal seeking funding to explore this new area, included as Article 39, outlines some of the dimensions of the problem. Student performance on standardized exams and comparison of courses on the basis of specified learning outcomes are just two possible approaches to the assessment of telecourses which may be offered "across state lines."

Article 32

"Issues in the Evaluation of Educational Television Programs"

by

Frances M. Aversa and David C. Forman

This paper deals with two main topics. The first topic concerns the design and results of an evaluation study on pilot educational television programs for a college course entitled "The Great Plains Experience: A Cultural History" developed by the University of Mid-America (UMA). The sample, methods and results of the evaluation of these pilot educational programs will be presented and discussed. The second topic identifies those issues raised by the study which may be of general interest to evaluators and professionals in the field of educational television. Before discussing the first topic, the design and implementation of the evaluation study, a brief overview of the University of Mid-America and of the Great Plains course will be presented.

The University of Mid-America is a five-state consortium[1] concerned with the operational testing and development of multimedia college courses for at-home study. The team which develops each UMA course is comprised of four key roles: a television producer, an instructional designer, a subject matter expert and a formative evaluation specialist. Each course usually contains a series of half-hour broadcast television programs, weekly newspaper articles, a textbook, a students' guide and, in some courses, audio tapes. All course work can be completed at home, although learning centers for personal tutoring and counseling are interspersed throughout the five-state region. In two years of operation, over 2,300 students have enrolled in courses offered through state delivery systems.

"The Great Plains Experience: A Cultural History" is a course sponsored by the National Endowment for the Humanities, and it has recently completed a preliminary stage of development. The course will eventually consist of nine lessons. Two pilot lessons were produced during this development period, each lesson contained two television programs, an essay book and study guide. The television programs, which are the specific focus of this paper, are an integral part of the course. Because they will be broadcast on public television, the television programs will also be viewed by people not enrolled in the course. The programs themselves, therefore, must be engaging and stimulating if they are to attract and hold the casual public television viewer. The programs,

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From Frances M. Aversa and David C. Forman, "Issues in the Evaluation of Educational Television Programs," pp. 1–17, University of Mid-America, Lincoln, Nebraska. Used by permission of the authors.

[1] The five states in the UMA consortium are Nebraska, Kansas, Missouri, Iowa and South Dakota.

then, serve two audiences: the enrolled student and the casual, non-enrolled learner. The study reported below deals with the enrolled student audience. A separate study not reported here has been conducted on the non-enrolled ETV viewing audience. With this brief overview of the context for the pilot study in mind, we will now turn to a description of the pilot study itself.

The Evaluation Study

Sample

Sixty-five adults participated in the pilot test of the Great Plains course. These adults were selected so as to be generally representative of the larger population of learners enrolled in open learning courses in the State University of Nebraska (SUN) to date.[2] The three variables that were used as guidelines in selecting participants were sex, age and education level. A summary of the characteristics of the sample is presented in Table 1.

The participants were enlisted by various means. Most were recruited through personal and phone contact with both formally and informally organized community groups, such as PTA councils, historical society groups and arts councils. During a one month period, over 627 people were contacted through these channels. (Less than 10% of this number agreed to participate.) In addition, a newspaper advertisement was run in the local Sunday paper and a story was placed in the monthly newsletter of university extension clubs. Each participant received an honorarium of $25.

Methods

Four television programs, two for each lesson, were included in the pilot materials. Half the sample worked through one lesson and the other half through the second pilot lesson concurrently. Since the course would eventually be offered in an at-home study setting, the students worked through the print materials at home. They gathered in small groups of from 10 to 12 persons to view the television programs through a closed circuit system and to participate in discussions with a group leader. Chart 1 summarizes the activities in the evening evaluation sessions. Student data on the programs were collected from three primary sources: group discussions, forced-response questionnaire items and essay-type questionnaire items. Demographic and achievement data were also gathered.

Table 1

Comparison of Age, Sex and Education Level of SUN Learners and Cultural History Evaluation Sample

Characteristics	Great Plains Sample (N=65)		SUN Learners (N=2,371)	
Average Age	44 years		37 years	
Sex	Male	27%	Male	24%
	Female	73%	Female	76%
Median Education Level	1-3 years of college		1-3 years of college	

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[2] The State University of Nebraska (SUN) is the UMA delivery system in the state of Nebraska. Other UMA states have similar statewide delivery systems.

Chart 1.

Activities in the Evaluation Sessions

Activity 1: Questionnaire on At-home Study Materials

The learners were given a five-page questionnaire focusing on general reactions, specific strengths and weaknesses and individual ratings of essays and study guide activities.

Activity 2: Group Discussion on At-home Study Materials

The learners participated in a 30-minute discussion focusing on specific aspects of the study guide, newspaper articles and essays. Several discussion questions offered the participants the opportunity to elaborate on their questionnaire responses.

Activity 3: Viewing of the Television Program.

Activity 4: Questionnaire on Television Program.

The learners filled out a six-page questionnaire on the strengths and weaknesses of the program and its appeal, comprehensibility, internal consistency, credibility and relation to the other course materials. The participants were also asked for revision suggestions.

Activity 5: Discussion on Television Program.

The learners then participated in a 30-minute discussion directed to many of the issues treated in the questionnaire. The discussion primarily focused on revision suggestions, what was learned in the program and how this related to other course materials.

An evaluation of pilot programs can serve both formative and summative purposes. In the case of the evaluation of the Great Plains programs, the primary purpose was summative; the report was written to assist the funding agency (NEH) in its deliberations about the course. The evaluation was also designed in anticipation of future development of the full course and, therefore, had a formative function as well.

The combined formative/summative nature of the evaluation required questions designed both to diagnose difficulties in the television programs and to ascertain summary judgments about their overall quality. Each course team member was interviewed and the parts of the questionnaires devoted to formative evaluation were designed to reflect the priorities and concerns of the staff.

Summative questions on the pilot programs asked the students to render opinions about the program as a whole. The following are some examples:

1. Do you think you might want to watch future Cultural History television programs after watching this one?
2. Would you recommend this program to a friend?
3. Overall, which statement best summarizes your reaction to the program you have just seen?
4. Overall, how would you rate the television program?

The students were also asked to consider individual sequences, characters, formats and scenes. Each program had four or five main scenes, each to be rated on the basis of appeal, amount learned, clarity and time allotted. Participants were encouraged in open-ended questions to expand on many answers given in forced choice items, thereby providing specific information for revision purposes.

Results

The analysis of the questionnaire and group discussion data led to a number of conclusions and recommendations. Those referring to particular characters, scenes and topics related specifically to the Great Plains programs are not reported here. The following statements and recommendations deal with techniques, approaches and other subjects of general interest.[3]

- The television component is an important part of the course, giving life and color to the materials.
- Students are very demanding of the extent and quality of information contained in the production when the emphasis is on information rather than on the human experience.
- Students are less demanding of the actual information content when the emphasis is on the human experience, provided the perceived quality of the affective treatment is high.
- Alter the proportion of studio time in favor of "on-location."
- In-depth personal interviews and case studies are appealing and among the favorite types of scenes.
- Be selective about the interviews that are used, both in terms of their relevance to the overall purpose of the program and of their representativeness.
- Use visuals, whether film or stills wherever possible to accompany narrations.
- Treat only a few topics in depth in each program or present a true summary which is introduced as such.
- Use television personalities who are relatively at ease in their roles.
- Exercise caution in the use of background music, particularly when the host is talking.
- Use complex sentences, subordinate clauses, and parenthetical expressions sparingly in lengthy narrations.
- Do not leave important visuals, such as the map in the studio set, unexplained.
- Be especially careful not to treat a topic touched only peripherally or not at all in the written material in a terse or superficial manner.
- Do not introduce any topics which the presentation is not prepared to treat, at least in part, visually.

The students found the sequences dealing with people, their life on the plains and how the plains affected human settlement to be particularly appealing. These treatments seemed to convey drama and excitement, as well as an understanding of the day-to-day realities of life on the plains. The following techniques were successfully used at various times to relate the human dimension of the plains settlement: person-to-person interviews, "vox pops" or man-in-the-street solo appearances, accounts read from diaries, literary treatments of people's experiences and statements from the two hosts, both past residents of the plains.

One strong negative outcome was the students' objection to what they perceived as superficial treatment of certain issues in the program. There are several possible explanations for this perceived superficiality. It may have resulted from the production decision to opt for breadth—an overview or summary approach—rather than depth of treatment. It is possible, however, that it was not the number of topics treated, per se, but rather the manner in which they related to one another, that caused the difficulty. For example, if the transition between topics is unclear or if certain topics are not adequately developed, then the program may appear fragmented and be difficult for the learner to assimilate. There may be several factors contributing to the sense of superficial treatment, but whatever the reasons, the impact on the students was negative.

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[3] The questions and data on which these generalizations are based are included in the full evaluation report: "An Evaluation of the Two Pilot Units of the Great Plains Experience: A Cultural History," Aversa, Forman and Vallance, 1975.

Issues Raised by the Evaluation Study

During the pilot study and in the process of writing the evaluation report, several issues deserving discussion and consideration emerged. These types of issues are present in most evaluations, but because of tight time schedules or lack of resources, they seldom get addressed. Some arise inevitably because the naturalistic setting and subsequent lack of control in many evaluation studies. Others arise because of the very time constraints and resource deficiencies that later prevent their being examined. If an evaluator were to have a year to gather data, the problems presumably would be much less severe than if the information has to be gathered and reported within a two-week period.

Due to their frequency of occurrence and importance to the study, the issues or questions that are raised during the course of an evaluation study need further attention. Detractors and critics of evaluation procedures are quick to point out a myriad of problems and yet evaluators are often hesitant to examine their own process. The questions which arise are an integral part of any study and they need to be brought out of the closet, as it were, if they are to be either acknowledged as inevitable constants or defined as variables that can and ought to be controlled.

In some cases, research can be subsequently conducted to gain further understanding about an issue or problem that arises during a study. For example, it is possible to design a study to determine if reviewers are more or less critical of course materials when they participate in a study as part of a group rather than as individual respondents. In other cases, problems can be at least partially obviated by developing, at a later date, conceptual models or frameworks. For example, the issue of what criteria are used to evaluate a program can be addressed by systematically developing a logical model and categories of criteria; the model then becomes a rationale for the questions which are asked. As the model is exercised in a number of different settings, it can be revised to more closely reflect the experience gained. There are also issues relating to the study which are not capable of being resolved at the present time; any evaluation study is filled with unanswerable questions. They need to be identified and dealt with honestly, openly and not apologetically. Compromises and trade-offs are made continually during the course of an evaluation. By better understanding the strengths and weaknesses of competing approaches, assumptions and practices, our practical decisions can be better informed.

The discussion of the seven issues that follows is an attempt to address important concerns that arose during one evaluation study. We are not presenting any definite answers but we are recognizing the questions as an important part of the study we conducted. They are presented in the hopes that subsequent studies will be cognizant of them and, whenever possible, improve upon our treatment of them.

Issue #1: Selection and Commitment of the Sample. Over 600 persons were contacted directly and another large number were exposed to a descriptive advertisement for the pilot study in order to enlist the assistance of the final 65 participants. There is an unavoidable "self-selection" bias in the sample which must be acknowledged. It is possible that the bias could be reduced somewhat through the use of impersonal, relatively non-descriptive advertising techniques but this approach breeds a new set of problems, not the least of which is that of screening applicants. Even when the screening problems are disregarded, the self-selection bias remains. Ultimately, those who participate do so either because they are interested in the topic area, committed to continuing education, enjoy participating in studies, or would like the honorarium.

Another question concerns the difference in commitment between the pilot test participants and the (eventually) enrolled students. Are pilot test participants *more* critical than actual students because they perceive their primary role as reviewer and critic? Or, are they *less* critical because they have not paid for the course and have not approached it with a set of expectations about what it should deliver? (We are presently planning a research study which examines this issue. We may determine whether or not a bias exists, and, if so, in which direction. The condition itself may not be correctable but data can be interpreted with greater assurance.) In the case of the Great Plains pilot test, several decision makers believed that a difference exists in either one direction or the other, lessening somewhat the credibility of the pilot study results from their perspective. It should be mentioned that the pilot test participants were selected on the basis of their expressed interest in the culture and history of the Great Plains, but this expression of interest was not considered to be equivalent to the commitment made by the enrolled student.

Issue #2: The Environment of the Evaluation Sessions. The television programs and the course itself are designed for use by individuals in their homes. Although the students in the Great Plains evaluation did the bulk of their studying individually at home, they met in group sessions at the end of each week. The group viewing of the television programs was a logistical necessity, but the group interaction, both informally and during formal discussions, may have somewhat biased the participants' evaluative responses. One step which was taken to at least partially alleviate the problem was to have the participants individually fill out a questionnaire before engaging in the group discussion.

One cannot consider solutions to this problem without facing significant trade-offs. The group discussion of the television programs is an extremely valuable source of information to the evaluation. It provides a depth of insight that is difficult to achieve in written instruments. The exchange among members of the group can also yield information that individuals separately would not mention. The evaluator then must weigh the trade-offs between adding to the artificial conditions of the testing session and sacrificing possibly rich and useful discussion data. In this case, a choice was made to include the group discussion because of its importance to the purposes of the evaluation.

Issue #3: Student and Expert Review. In a rather heated and abrupt moment, one reviewer, referring to the pilot test audience, pointedly told the evaluation staff that "these people don't know how to watch television." This statement was precipitated by reactions from test participants which did not conform to the decision maker's own judgments and to those of an independent "expert" review panel. An issue imbedded in this brief incident is one that must be considered in evaluation studies of the nature reported here: What information can be received from the test participants and how does this information relate to that gained from experts and other reviewers?

Both student and expert review are important to a comprehensive evaluation of television programs. There are relatively distinct areas on which either students or experts are best suited to comment, but there are also many common points that both audiences will evaluate. Since each brings different criteria and standards to these common areas, conflicting opinions may result. For example, one essay in the Great Plains textbook was rated high by the students and low by the historians. The reasons for this apparent discrepancy illustrate the importance of not relying totally on student or expert data in certain areas of concern: the students liked the readability, style and organization of the essay but the content experts felt that several historical concepts were misrepresented. A number of similar situations existed in the responses to the television programs.

(These differences do not, however, support the position that the test participants "don't know how to watch television.") Given sufficient time and resources, it is our feeling that a comprehensive evaluation should include different perspectives, representative of those who will use and/or judge the final product, and carefully weighed as to their relative credibility on particular topics. The final evaluation report to NEH for the Great Plains did include, under separate cover, reviews by three experts in cultural history. The evaluation did not, however, contain reviews by media experts or students from areas other than Nebraska.

Issue #4: Formulation of an Explicit Evaluation Model. The evaluation instruments for the Great Plains pilot test evolved, in part, as a response to an implicit model of evaluation. The fact that this model was not formalized or written down caused some problems. There were, for instance, some questions which should have been given more emphasis and others that should have been asked but weren't. It is obvious to us at this time that a coherently stated explicit model is essential to an effective evaluation procedure and sound instrument construction.

The UMA model presently being developed is based on three categories of criteria: content, design and aesthetic quality. These categories represent the three major forces on UMA course teams—that is, the content expert, the instructional designer and the producer. Since the television programs produced by UMA must be reviewed and approved by various audiences including learners, funding agency representatives, faculty members and other experts, the UMA model must be broad enough to accomodate each of these audiences. If it does not address the concerns of these audiences, the evaluation will likely be deficient.

Table 2 presents a sampling of the questions to be addressed in the content, design and aesthetic quality areas. While opinions of specialists in each of the designated criterion areas should be heavily weighted in the evaluation, student response data can also address the majority of the questions. The questions with an asterisk are those for which student data are necessary and of primary importance. It should be emphasized that this list of criteria is not absolute nor unchanging. Refinements are being made as it is exercised in different courses and contexts. Forced-response and essay-type questionnaire items and group discussion questions have been generated for each of the questions listed in the model.

Issue #5: Conflicting Results from Different Evaluation Instruments. As previously mentioned, general appeal data were gathered from three different sources: forced-response questionnaire items, essay-type questionnaire items, and group discussions. Although each of these data sources had its own distinct purpose and role in the evaluation, there were a number of cases when questions from all three sources focused on the same topic. In these cases, there was not always agreement in the responses given by the students. Typically, responses to the forced-choice items were more positive than those either to the group discussion or to the essay-type questions. The reasons for these apparent discrepancies may be several, including the inter-group dynamics in group discussions, order in which the questions were asked, and the fact that the questions themselves were frequently asking for slightly different discriminations.

The evaluation is then faced with a decision about how to report the results from these different sources. The tendency is usually to simplify and perhaps distort the results by reporting the forced-choice data as the primary source (because they are easily tabulated) and discounting or separately discussing the more subjective data. Group discussion data are particularly hard to distill because of difficulties in distinguishing speakers on a typed transcript and determining the

Table 2

Criteria for Evaluation of UMA Television Programs

Content Criteria

Are there content errors?
Are there ambiguous content areas?*
Is the content important?*
Is there an appropriate amount of content?*
Is the level of the program appropriate to the level of the course?
Does the program present interesting and challenging ideas?*

Design Criteria

Does the program achieve its intended purpose?*
Is the program either too simplistic or too difficult?*
Is the program well organized (overview, transition, summaries)?
Is information clearly presented in the program?*
Are there pre-requisites for the program?
Are there too many or too few topics treated?*
Does the program develop the main points adequately?*
Are the main points well illustrated?
Are non examples of the main points used?
Does this program integrate with other course components?*

Aesthetic Quality (Production) Criteria

Is there a good balance between in-studio and on-location filming?*
Is the voice-over technique used effectively?
Is the program interesting?*
Are existing stills and footage put to good use?
Is there continuity between sequences?*
Is the program paced too fast or too slow?*
Are the sequences an appropriate length?
Is the level of comments made by the host(s) and other actors appropriate?
Does the program portray relevant human experience?*
Is there a good relationship between the audio and video tracks?
Is the program visually exciting?*

Asterisk indicates questions on which student data should be gathered.

source and frequency of certain statements. Even when attention is paid to procuring these distinctions, inconsistencies among data sources still remain, which, if left unexamined and unexplained, tend to lessen the credibility of all the results. On several occasions we explicitly dealt with the discrepancies and hypothesized reasons for the different reactions to questionnaire items and discussion questions. These hypotheses, although they involved considerable speculation, were found to be very useful by the course team.

Issue #6: Standards and the Interpretation of Data. The previous issue was concerned with differing responses to several questions on the same subject; an equally important consideration is the possibility of different interpretations of the data from one question. The questionnaires asked students to make judgments about many different aspects of the pilot programs. Judgments were rendered by the students about the appeal of different scenes, the hosts, various production techniques and the overall impact of the programs. Two examples of a questionnaire item asking for student judgments about the entire program are the following.

1. Would you recommend this program to a friend? (19) Yes (3) No (6) Maybe
2. Overall, which statement below best summarizes your reaction to the program you have just seen?
   (0) I didn't like it at all.
   (1) I didn't like it very much.
   (1) Neutral.
   (15) I liked it somewhat.
   (11) I liked it a lot.

These results are subject to several interpretations. On the one hand, the responses to Question 1 are quite favorable; only 3 of 28 people say "no." But, on the other hand, 9 of 28 (32%) people give a non-positive response. What does it mean if one-third of the sample are either uncertain or negative in their assessment? What would it have meant if the percent was 20%, 25% or 40%. What constitutes sufficient evidence of success or failure?

In Question 2, the dilemmas do not seem to be so great; after all, only 2 of 28 people (7%) give non-positive responses. The evaluator must still, however, ask the meaning of a response to the choice, "I liked it somewhat." Even though this is seemingly a positive reply, is it good enough? Will a fundor or other decision maker be satisfied with this response?

There are not many answers to these types of questions. A caution, though, that can be offered—and one that we tried to heed in writing the report—is to be aware that people can interpret the same data in strikingly different ways, and the language of the report should be carefully phrased. Blanket statements and generalizations should be avoided unless clearly supported.

Issue #7: Style and Length of the Evaluation Report. After the conclusion of the study, the evaluators were faced with the task of writing the report. In this case, the report was primarily intended for the funding agency, with the secondary audience being the course team itself. The evaluation report was to be reviewed by the funding agency and weighed in its decision about the course. Since the decision makers were not clear about the type and extent of student feedback information they required (as is often the case), the evaluation report endeavored to cover all possible areas. The report also contained formative as well as summative data since it would be used by the course team in subsequent course development. The result, in this case, was a weighty volume containing too much detail that by its size discouraged use and readership.

Another frequent problem in reporting evaluation results is finding the appropriate balance between statistical data, representative comments and descriptive analysis. An excess of statistics, especially if they are too sophisticated for the intended audience, can have an adverse effect. A dearth of statistical data, however, can cast doubt on the credibility of the results. It is necessary to strike a balance between the two extremes. In the case of the Great Plains report, too many tables and statistics were contained in the report and, consequently, people at the funding agency found the report somewhat impenetrable.

The organization of the report can also influence its utility. The Great Plains team, for example, weighed the merits of two approaches to reporting results: one presented a summary statement of a result, followed by supporting data and the other presented the data first and the conclusions second. Although this ordering would seem to be a small concern, decisions such as these may have a significant bearing on the readability and ultimate utility of the report. It is also important to decide if the report should have a section on conclusions and findings *before* the body of the report so that readers can quickly be apprised of results without having to page through the entire report. The Great Plains report did not contain such a section and it is evident that the report would have been more acceptable to the primary audience if this section had been included. Another key organizational issue is what to include in the body of the report, assign to the appendix or exclude from the report all together.

In all of these organizational and stylistic considerations, it is crucial to tailor the report to the primary audience. To do this, it may be necessary to press the funding agency (or other primary audiences) to clearly delineate their expectations and to specify how they will use the report.

Conclusions

This paper has discussed an evaluation study of four pilot educational television programs. The sample, methods and results of this study were examined. As with any research or evaluation study, there are always a number of issues that arise, assumptions that are called into question or problems that develop. The incidence of these incongruities is frequently high in evaluation studies where controls are often not particularly stringent and time is of the greatest importance. This paper has identified seven such issues: selection and commitment of the sample; environment of the evaluation sessions; student and expert review; formulation of an explicit evaluation model; conflicting results from different evaluation instruments; standards and the interpretation of data; and the style and length of the evaluation report. We hope that information presented in this article, both in the treatment of the evaluation study and the discussion of the seven issues, will provide useful guidelines to evaluators and researchers engaged in similar types of activities.

Article 33

"Chicago's TV College: Summary of Third-Year Comparisons"

by

James J. Zigerell and Hymen M. Chausow

In the first two years, experimentation showed that TV-at-home groups achieved at least as well as and sometimes significantly better than conventionally taught classroom groups.* This was true even when the groups were equated as much as possible in age and initial ability and when adjustments were made for inequalities in initial ability. In the third year, experimentation again showed TV-at-home groups achieving as well as or better than conventional classroom groups: (In Psychology 207, Speech 141, and Mathematics 103, TV-at-home groups were favored over control groups at the 5%, 1%, and 1% levels respectively.) However, other experimentation showed that TV-in-class groups sometimes achieved as well as conventional groups but not always. In Social Science 102, Humanities 201, and Speech 141, TV-in-class and conventional day groups did not differ significantly in achievement, but in Physical Science 101 and Humanities 202, conventional classes were favored over TV-in-class at the 5% and 1% levels respectively.

When one attempts to evaluate through these findings the single variable of television vs. conventional instruction, one discovers that apparently television is sometimes superior to, sometimes equal to, and sometimes inferior to conventional instruction (sometimes superior for the at-home group and sometimes inferior for the in-class group). How can these apparent variations in the results be explained?

One of the problems involved in comparing different methods of instruction lies in isolating the method variable in a complete definition of a teaching-learning situation. Very often the situation is labeled by a general method term, such as lecture or discussion. But such a term refers very loosely to only one variable in a very complex teaching-learning situation having many interacting variables, some of them more important than the method variable. The differences between the variables within a single teaching-learning situation labeled as representing a given method may be greater than the differences between variables from two situations representing

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From James J. Zigerell and Hymen M. Chausow, Chicago's TV College: A Fifth Report, City Colleges of Chicago, 1974. Used by permission of Center for Open Learning, City Colleges of Chicago.

*From *Chicago's TV College, Final Report of a Three-Year Experiment*, pp. 63–66.

different methods. Therefore, if the method of instruction is to be evaluated, the definition of the teaching-learning situation must identify each variable and indicate precisely the similarities and the differences between the situations being compared.

Criteria such as the following can serve as a frame of reference for a more accurate definition of a teaching-learning situation: the degree and type of student motivation, the number of opportunities for problem solving, the amount of practice in use of the new learning, the amount of participation in group discussion, the amount of private or semi-private consultation with the teacher, the variety of learning experiences, the organization of learning experiences, the training and previous experience of the instructor, and the age, ability, interests, etc., of the student population.

This kind of analysis was used by the Social Science faculty of the Wright Branch when it participated in the Cooperative Study of Evaluation in General Education sponsored by the American Council on Education. This faculty made a comparison of student growth in critical thinking in Social Science 101–102 for lecture and discussion methods of instruction. During the first year of the project, nonsignificant gains between the pre- and post-test of critical thinking were found in both the lecture and discussion methods. In the following years, a set of criteria for defining learning situations was developed, and it was possible to identify several types of teaching-learning situations. The final comparisons showed differences with a significance beyond the 1% level among these classroom situations. The differences were found within each "method" of instruction and between lecture and discussion methods and were shown to be related to the degree of application of the above criteria to the classroom learning situation. In effect, there were more differences within a method than between methods of instruction.

If this method of analysis could be used in comparisons of television and conventional instruction, it might be possible to discover a hypothesis which would explain the apparent variations in the results of the comparisons in the three-year experiment.

In spite of these apparent variations, a basic conclusion seems fully warranted by the results of the three-year experiment:

"When evaluated by the techniques of measurement and analysis used in the experiment, television instruction is a thoroughly effective means of extending college opportunities to at-home students in all the subject areas explored in the experiment."

Summary of Achievement Comparisons by Subject for the Third Year, 1958–59

	Data					
Group	N	OTIS*	Subject Pre-test	Final Means	Adjusted Final Means	Significance
Social Science 102:						
TV-at-home	29	54.45	—	132.52	129.13	F: Significant @ 1% level
TV-in-class (Random day)	29	52.07	—	113.90	113.01	TV-at-home vs. TV-in-class-significant @ 1% level, favoring TV-at-home
Control (Random day)	29	47.14	—	116.72	121.00	No other significant differences

*Scores on OTIS Test of General Mental Abilities

Summary of Achievement Comparisons by Subject for the Third Year, 1958–59—*Continued*

	Data					
Group	N	OTIS*	Subject Pre-test	Final Means	Adjusted Final Means	Significance
Physical Science 101:						
(TV-at-home)	36	56.78	22.44	225.42	212.41	F: Significant @ 1% level
(TV-in-class)						Wright control vs. TV-significant @ 5% level, favoring control
Wright (Random day)	29	47.90	21.00	208.00	215.01	
(Control (Random day)	30	55.00	21.10	237.20	230.85	
Wilson (TV-in-class (day)	33	48.00	19.88	177.55	188.47	No other significant differences
Wilson (Control day)	44	50.73	21.61	184.16	185.29	
Humanities 201:					Matched	
TV-in-class (day)	31	51.2	27.6	176.16	Group	No significant differences
Control (day)	44	49.3	28.8	181.11	Analysis	
Humanities 202						
TV-in-class (day)	20	60.35	—	152.85	152.01	Significant @ 1% level, favoring control
Control (day)	31	58.52	—	175.68	176.21	
Psychology 207:						
TV-at-home	60	56.32	30.27	187.27	185.53	F: Significant @ 5% level
(day)	30	54.30	30.23	178.83	178.80	TV vs. Eve control & Combined controls-significant @ 1% level, favoring TV
Controls (eve)	21	52.76	28.43	164.48	169.33	
(combined)	51	53.66	29.49	172.92	175.00	Day controls vs Evening controls-significant @ 5% level favoring day controls
Mathematics 103:						
TV-at-home	35	55.20	—	140.23	—	Significant @ 1% level, favoring TV
Control (eve)	30	57.97	—	122.67	—	
Speech 141:						
TV-at-home	17	53.41	20.88	122.35	118.34	F: Significant @ 1% level
TV-in-class (Random day)	15	42.93	16.27	104.40	109.65	TV-at-home vs. both controls-significant @ 1% level, favoring TV-at-home
Controls (Random day)	48	50.65	18.50	106.19	106.19	
Controls (eve)	37	50.73	18.89	106.19	105.68	No other significant differences

*Scores on OTIS Test of General Mental Abilities

Article 34

"Traditional versus Televised Instructional Methods for Introductory Psychology"

by

George R. Mount and Sharon R. Walters

Early reports on televised psychology courses were favorable [1–3]. The airing of credit courses was received enthusiastically by both students and the general public. The viewing audience for these courses was thought to be between 60,000 and 100,000 persons, though only a very small portion of these were actually receiving college credit. As a result many of these individuals called and wrote for help with personal problems. The spin-off referrals from such programs is, no doubt, a boost to mental health and the psychological community.

In 1965, General TV Psychology was offered by twenty-three colleges [4]. There is evidence however, that many universities have discontinued the TV Psychology courses for various reasons [5]. This may be a result of the poor quality of some of the earlier TV Psychology Tapes. Other universities have employed TV Psychology successfully for over ten years [5, 6].

Several research studies have indicated that TV Psychology is as effective as the traditional lecture approach to teaching psychology [7, 8]. In Husband's 1954 study, campus students who watched films of TV talks and then participated in informal discussions afterward, appeared to do better than TV alone groups and traditional campus lecture groups when tested over the same material. Three years later, these groups retook the final exam and no significant retentional differences were evident at that time [9].

Few studies have reported the percentage of students completing TV psychology courses nor have they compared this percentage with those of traditional methods of instruction. Husband, reported that fifty-four of fifty-six students enrolled for credit, in the at home TV Psychology course, passed. In Stromberg's study [3], only thirty-five of the original sixty-six TV enrollers took the final exam [8]. Husband, has suggested that these differences may be related to student population differences and the fact that Stromberg's course tended to be more theoretical [8].

In reviewing instructor's opinions on what makes for an effective TV psychology course, there were several points of agreement. Instructors believed that TV courses should be of broad interest, presented in simple language, and related to daily life. They felt that programs should

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concentrate on a few salient points and include interesting demonstrations. Most instructors made an effort to choose a course content which would be minimally threatening and anxiety producing. The choice of instructor appears to be one of the most important variables. Instructors have suggested that a good voice, warmth, and friendliness are all desirable characteristics.

Students' evaluations of TV psychology have been mixed [5]. Some students miss live lectures and personal contact with the instructor. Others enjoy the combination of learning and entertainment.

The current study compares various characteristics of students in televised introductory psychology to those of students in a traditional approach to the teaching of psychology. The performance of these two groups of students is also compared.

Method

Subjects

The subjects of this study were students enrolled in the senior author's Fall 75 and Spring 76 introductory psychology classes at a community college in a metropolitan city. The author's classes consisted of 189 students enrolled in a televised introductory psychology courses and 108 students enrolled in his campus psychology courses (traditional method). Of the 189 students in the TV course, only those 134 who took the 16 Personality Factor Inventory were used as subjects. Similarly, only 73 of the 108 students in the traditional method could be used.

The mean age in the traditional method ($\overline{X} = 19.88$) was considerably lower than that of those in the TV method ($\overline{X} = 30.52$). There were thirty-nine females and thirty-four males in the traditional method. In the TV method, there were seventy-one females and sixty-three males.

Demographically, the students employed in this study can be categorized in the following manner: approximately 78 per cent are Caucasian, 17 per cent are Negro, 3 per cent are Latin-American, and 29 per cent are of unknown ethnic background. Approximately 53 per cent are part-time and 47 per cent are full-time students. The average course load is ten hours, 57 per cent of the students are planning to continue at a university, 19 per cent are technical/occupational students seeking a two years degree, and the remainder are undecided. Approximately 80 per cent are high school graduates. Quite a few are returning to school for the first time in many years. Psychology is often among the first course they take.

Instruments

The Sixteen Personality Factor inventory developed by R. B. Cattell was used to measure student characteristics. The appendix contains a copy of this inventory's profile sheet. Students responses were recorded as sten scores. Students ages and sexes were also included as predictor variables.

The criterion variable for each subject was determined by his cumulative score on three psychology tests. The tests for both methods were approximately equal, differing only with respect to five questions on each test. All students read the same textbook, *Psychology: An Introduction* by Morris [10]. Students in the TV method were asked to buy Mount's *As Man Behaves*, which is a study guide written for the course by the senior author [11].

A course evaluation survey, prepared by the college district was given to students in the TV method during final exams. Table 2 contains a portion of that survey.

Table 1
Mean Stern Scores and F Values for Methods

Scales Scored 1 to 10	Traditional X's	TV F	F
5 Sober-happy	4.19	5.26	14.55[c]
8 Expedient-Conscientious	5.64	6.22	4.40[a]
9 Trusting-Suspicious	5.75	5.13	5.62[a]
11 Forthright-astute	5.90	6.69	6.67[a]
12 Self-assured-apprehensive	6.31	5.44	9.29[b]
15 Undisciplined-controlled	5.75	6.33	4.07[a]
Age	19.88	30.52	71.04[c]
Scores	69.19	84.83	24.98[c]

[a] p.05
[b] p.01
[c] p.001

Procedure

Students in the TV method watched a video tape series, *As Man Behaves*, on the local public television station. Each of thirty, thirty-minute programs was shown several times a week. The material in each program corresponds to that found in the textbook. Programs contained interviews with well known psychologists and entertaining demonstrations of psychological principles. In addition, students were asked to buy the study guide, *As Man Behaves*, [11]. They visited the campus for one of the two orientation sessions with the instructor and took three tests which were available in the college testing center. Students in the TV method were also asked to fill out a course evaluation during the final exam.

Students in the traditional method listened to lectures and saw films. They took their tests in class.

All students took three, forty questions tests. Final grades were determined as follows: A = 100–120; B = 90–99; C = 75–89; D = 60–74; F = 73 and below. Students were told that they could receive extra credit by taking the 16 PF. Students took the tests in the testing center at their convenience. Those students who wished to obtain their results on the 16 PF were sent to the school counselors. All students, who completed this inventory and all three "tests" were included in the statistical analysis regardless of whether they passed the examinations.

Results

Initially, a discriminant analysis computer procedure (STO 31) was employed to assess group differences. Variables which indicated significant differences between the TV method and the traditional method are listed in Table 1. TV students' scores on the 16 PF indicated that as a group they tended to be more happy-go-lucky, conscientious, trusting, astute, controlled and less apprehensive.

In looking at mean scores for groups by sex, there appears to be some interaction. Females in the TV method did better on the tests ($\overline{X} = 87.86$) than males ($\overline{X} = 80.27$) in the same method. Males in the traditional method did better ($\overline{X} = 72.75$) than females ($\overline{X} = 65.9$) in the same method. The mean for all students in the traditional method was 69.19 and 84.83 in the TV method.

A one-way ANCOVA computer procedure (STO14) was then employed with age as a covariate and test scores as the criterion. The difference between the adjusted means was significant, *F* (1,204) = 20.91, $p < .0001$. With age taken into consideration, the adjusted groups means were 71.09 for the traditional method and 83.80 for the TV method.

Discussion

Since it was not feasible to randomly assign students to methods, the significant ANCOVA results for these two groups cannot be easily explained. ANCOVA results suggest that age was a factor since the corrected group means were less discrepant. The difference between the groups was still, however, more than ten points. These results are surprising, in that, students in the traditional method appeared to have the advantage of more lecture and review relevant to the test questions. Students in the TV method, however, did have the advantage of the study guide, *As Man Behaves* [11]. It is likely that, those students who took the time to fill out the TV study guide were better prepared for the tests. Students' survey responses to the study guide tended to be very favorable. Table 2 contains survey data obtained from students in the TV method, during final exams. Further research will compare student scores with the per cent of study guide questions completed during the year.

Table 2

District-Wide Student Evaluation of the TV Method

Overall opinion of the course	Excellent	Above average	Average	Below average	Poor	No response	Mean
Fall 1975 Semester							
1. I would like to take another T.V. course.	36	34	12	7	6	6	3.9
2. The T.V. programs are interesting.	35	38	13	6	1	6	4.0
3. The textbook is a good one for this course.	24	39	19	8	4	5	3.8
4. The study guide helps me organize my studies as I go through the course.	45	36	10	4	0	6	4.3
5. The study guide is well coordinated with the T.V. programs.	35	39	12	7	1	6	4.0
Spring 1976 Semester							
1. Textbooks or Reader.	60	33	5	1	0	1	
2. T.V. Programs.	45	45	6	3	1	0	
3. Study Guide.	69	26	3	1	0	1	
4. I would like to take another course taught this way.	39	34	11	11	2	3	
5. The T.V. programs held my attention.	37	38	14	8	1	2	

Note: All of the above figures are percentile scores.

Of the 917 students enrolled in TV Psychology during the Fall 1975 Semester only 322 completed the evaluation. No figures were available for the Spring 1976 Semester.

Percentages were not available for each individual campus, but the same T.V. method described in the procedure section was employed throughout the district. The senior author was the instructor for all campuses.

Table 3

Percentage of Unsuccessful Students*

Teaching Method	Fall 1975	Spring 1976
T.V.	49%	346%
Traditional	39%	37%

*Unsuccessful is defined as students receiving a grade of I (incomplete), F (failure), W (withdrawal) and P (progress).

The final possible explanation for the significant ANCOVA results is that the groups' initial differences were responsible for their test score differences. Differences between groups on the 16 PF were evident. Students in the TV method tended to be more happy-go-lucky, conscientious, trusting, astute, controlled and less apprehensive. The influence of these variable is not, however, discernible from the available results.

Students' responses on the District-wide TV Course Evaluation (Table 2) indicate that many were please with the TV method. The higher percentage of unsuccessful students in the TV method as compared with those in the traditional method (Table 3), suggests that this method is not suitable for all students. Further research is now needed to determine which students are most likely to succeed in TV psychology courses.

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Article 35

"Telecourses: A Nonconventional Approach to Education"

by

Aaron Donsky, Robert Vaughn, Linda Burk and Cuba Hite

The use of sophisticated television broadcasting systems as a way of presenting educational material (telecourses) may represent a real advance in education. But some significant questions must be answered before judgment is rendered.

> Can educational quality be maintained in the face of potential television commercialism?
> Will enrollments in telecourses diminish on-campus enrollment resulting in the loss of faculty positions?

Dallas County Community College District (DCCCD) and Coastline Community College are two institutions in the forefront of the telecourse movement. Their work and experience may provide some answers to these questions.

With regard to the issue of quality, I will describe how the Coastline Community College telecourse system works and then refer you to the article entitled, "Odyssey On Man" which appeared in the October 15 issue of *Tie Line*. The article is a description of the course "Dimension in Culture" as envisioned by its designer, Coastline Community College.

Telecourse Format

1. Students watch course.
2. Every two weeks the students receive, by mail, self-testing scantron cards.
3. The cards are filled in and returned to the college where they are processed by computer.
4. The evaluations are returned to students with instructor's comments.
5. Students may receive help through a telephone conference or an appointment with a live instructor.

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The Dallas County Community College District has done research into the affect of telecourses on on-campus enrollment and has revealed the following information:

1. A major group comprising telecourse students consists of citizens whose circumstances make it difficult for them to participate in college credit courses. They are students who would not have come to campus had there been only the traditional classroom format available.
2. The telecourses have recruited new students into the full curriculum and created a new interest in the college itself. In the five years of operating telecourses *no faculty jobs have been lost*.
3. In the case of four humanities courses at DCCCD, when the existing on-campus courses were paralleled by telecourses, combined enrollments in all four increased 20 percent over the previous year.[1]

The LCC Experience

The remainder of this report is a first attempt at studying the telecourse concept and the characteristics of telecourse students at Lakeland Community College. Specifically, we have examined three presentations of essentially the same introductory business course in three different circumstances:

Business 115 (the telecourse format)
Business 130 (a day course at Mentor), and
Business 130 (an evening course at Madison).

A brief description of the BUS 115 vs. the BUS 130 format follows.

IEB: (Telecourse 115)
Used Dallas County Community College District (DCCC) Package (films on SVIZ-TV)
Used DCCC Study guide (required)
Used same text as other two classes (Hodgetts)
Discussions were optional and poorly attended.
Our AV recorded and set up each program for individual viewing.
Three 100 questions tests were used. Best 40%, others 30%; 50% each if only two were taken. Five persons tested by mail.
No outside assignments or other basis for grades.
Total TV time: 900 minutes
Total test time: 180 minutes
Total (Opt) Discussion: 540 minutes + 120 min. orientation
Discussions followed same format as BUS 130 lectures on the assigned topics, plus questions and answers.
Text chapters assigned: all except 8, 19*, 23, 24*, 26*. (*these get only a very light treatment in the live course)

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[1] Mittelstet, Stephen K., "Telecourses Recruit in Dallas," *Community and Junior College Journal*, Vol. 48, No. 6 (March, 1978), p. 20.

BUS 130:

- Used live meetings, including 8 films and two speakers besides instructor.
- Study guide for text was optional and discouraged
- Used same text as IEB, plus a Readings text.
- Attendance taken first three weeks only. Stayed up fairly well (75–85%).
- All films were repeated on DAIRS.
- Four tests, 72–100 questions each. Best three of four count equally.
- Campus section could earn extra points by attending management lecture series. Twenty-five percent did attend one or more of these. (The off-campus class was held at the same time as series.)
- Total class time 30 × 50 min. = 1,500 minutes.
- Text chapters assigned: all, with less emphasis on certain ones.

It is important to note at this time that the telecourse was run in both the mornings and evenings, so it had the potential to draw both day and evening students. Therefore, a comparison with a traditional day class in Mentor and an evening class in Madison could indeed prove interesting.

Analysis

Part I—Attitude Study

In this portion of the report we shall concentrate only on a comparison of attitudes and demographic characteristics among students in the three classes. In the second part of the paper we shall look at the question of relative student performance.

Attitudes Towards Telecourse
(See Figure 1)

What is particularly striking about the results of the evaluation of the telecourse by the students who were enrolled in it is the *overwhelming* support for it and the preference for it over the traditional course design.

There are, of course, possible alternative explanations for the student evaluation which may have nothing to do with the telecourse concept and may instead be linked to the kind of student who may be drawn to a telecourse design. It is, therefore, important to know if the business telecourse students have some unique characteristics relative to other business students. This comparison is possible by looking at the demographic characteristics of students in Business (115) telecourse and those of the students in the same course taught during the same quarter on campus (Business 130-Mentor) and off campus (Business 130—Madison). (See Figure 2.)

Summary of Demographics

While telecourse students had the option of day or evening, it appears that the telecourse tended to draw a student more similar to a part-time evening student than a full-time day student.

The following statements can be made about demographic characteristics:

1. The singularly unique feature about the telecourse students is that they tend to be older than the students in the other two business courses.
2. In all other ways, the telecourse students were similar in charcteristics to the Madison course students.

The following data reflects the general attitudes of 35 BUS 115 telecourse students to the telecourse experience.

	Strongly Disagree (1)	Disagree (2)	Neither Agree Nor Disagree (3)	Agree (4)	Strongly Agree (5)
The television programs used in this course were interesting and stimulating		2.6%	15.8%	68.4%	13.2%
The television programs were easy to follow		5.3%	7.9%	71.1%	15.8%
The presentation of material in the television course was better than most on-campus courses.		2.6%	15.8%	55.3%	26.3%
I am satisfied with the amount of contact I had with the instructor.	2.6%	10.5%	18.4%	55.3%	13.2%
A real disadvantage of the television course was the absence of classroom discussion.	2.6%	33.3%	20.5%	25.6%	17.9%
If I were to take this course again, I would prefer to take it in the traditional lecture mode	20.5%	38.5%	25.6%	7.7%	7.7%
If I had a choice between enrolling in the home television course versus an on-campus traditional style course, I would enroll in the television course.	5.1%	5.1%	17.9%	51.3%	20.5%
Knowing what I know now, and if I had to do it over again, I would elect to take this course.			7.7%	61.5%	30.8%
If this course had not been offered on television, I would have taken it on campus		12.8%	38.5%	10.3%	38.5%
As a result of my experience in this course, I would like to take additional courses in this subject area.		2.6%	35.9%	41%	20.5%
If I had the chance to take another television course, I would.	2.6%	2.6%	12.8%	48.7%	33.3%

Figure 1. Attitudes towards telecourse.

3. They were dissimilar from the Mentor students in that:
   (a) a lower percent were taking an additional course.
   (b) a significantly higher percentage were employed full time.
   (c) a much larger percentage were less than full-time students.

The profile of the telecourse student is someone who is:
(a) older than the average Lakeland student.
(b) employed full-time.
(c) taking the telecourse by itself or with one additional class.
(d) likely to have been a past student at Lakeland.

Total Number of Students: 102

	Telecourse	Business 130 (Madison)	Business 130 (Mentor)
Age	37% of students 29 yrs. or younger	65% of students 29 yrs. or younger	93% of students 29 yrs. or younger
Sex	46% Male 54% Female	50% Male 50% Female	46% Male 54% Female
% Returning	89%	81%	73%
% Taking an Additional Course or Courses	60%	58%	88%
% Planning to Take Course in Future	86%	96%	88%
% Full-time Employed	66%	72%	12%
% Part-time Employed	11%	12%	56%
% Homemaker	20%	12%	10%
% Not Employed	3%	4%	22%
Hours Presently Enrolled	75% taking 8 hrs. or less	87% taking 8 hrs. or less	10% taking 8 hrs. or less

Figure 2. Demographic characteristics.

Would They Have Enrolled in a Traditional Course?

An important question to be asked at this point is whether, had the telecourse not been offered, would most of these students have come in the evening to Lakeland as part-time students and then perhaps taken an additional course. There is evidence to suggest that the answer is no.

1. Students in all three Business classes (Telecourse, Business 130—Madison, Business 130—Mentor) were asked: What did you like best about this Business course? The only real pattern appears among telecourse students who stress the convenience of taking the course via television which allowed them more time for home and family.
2. Studies done by Dallas Community College suggest that telecourses reach older students who would be less likely to come to campus initially for traditional courses. One effect of their telecourses was to eventually bring these students to campus for additional courses. The Dallas results seem to be representative of other colleges' experiences.[2]
3. To the extent that our telecourse student is a returning student, i.e., someone who has been to Lakeland at some other time, we may through this medium be bringing the occasional student back to Lakeland and thereby also dealing with the nonreturning student problem.

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[2] *Ibid*

Attitudes Toward Educational Experience

Students in all three courses (Business 115—Telecourse, Business 130—Madison, and Business 130—Mentor) were asked to respond to the following statements:

1. I feel that I learned a lot from this course.
2. I would definitely recommend this course to a friend.
3. I put a great deal of effort into this course.

Although the differences among the groups responding to statement 1 are not statistically significant, there is a tendency for more of the telecourse students to feel that they learned a lot from their course than students in the other two groups.

Comparisons were also made for Statement 2. Once again, though the differences are not statistically significant, there is a tendency for more of the telecourse students to recommend the course they have taken to a friend.

Telecourse students may be an effective positive advertisement in the community for Lakeland.

In relationship to the third statement, there appears to be no significant difference in degree or direction to perception regarding the level of work involved in the course among telecourse and non-telecourse students.

Part II—Student Performance

The introductory business courses taught by Bob Vaughn in Winter 1979 presented the opportunity of looking beyond attitude and demographic differences to the question of relative similarities and dissimilarities in performance of students.

The following are the essential similarities between Business 115 (the telecourse setting) and Business 130 (the Madison and Mentor traditional course setting):

1. They both used the same text.
2. They were taught by the same instructor—Bob Vaughn.
3. The discussions in Business 115 followed the same format as lectures in Business 130.
4. Both received exams with essentially the same questions.

The major dissimilarity between the two settings was, of course, the fact that in Business 115 (the telecourse) the essential course material was delivered via a televised learning package (Dallas County Community College District) augmented by optional discussions with the instructor on six Saturdays, while in Business 130, essentially the same material was presented by the same instructor in a traditional classroom setting.

Other important differences include the times in which the learning experience occurred, as well as the initial differences in the demographic characteristics of the students in the two kinds of classes (already documented in Part I.)

No attempt here is made to present this part of the study as a rigorous, true experimental design.

—It was not possible to randomly select students for each of the three sections.

—It was not possible to significantly control the learning settings to allow for pre and post observations (thereby controlling for many kinds of problems of internal validity such as prior learning, maturation, and history)[3]

What this part of the study does represent is a semi-structured quasi-research design[4] consisting of only after-the-fact (post observations) measures of student performances in three fairly similar Introduction to Business sections differing fundamentally in the teaching format (telecourse versus traditional classroom).

No attempt will be made to reject null hypotheses, but rather an attempt will be made to describe possible trends in performance differences among students in the two different settings. In Part I, the described attitudes of telecourse students strongly suggested that they felt they had received as high a quality of course as they would have recieved under a traditional classroom setting.

The question posed in Part II is: Did the absence of a classroom setting seem to substantially impede the performance of students?

The answer to this question was approached in two different ways. Bob Vaughn, the instructor, kept exacting records on the performance of all students in each section on exams, comparing performances on the same questions. In addition, he kept attendance and enrollment records. The following should be noted from these results. *The TV group, as a whole, had a higher class grade point average based only on performance in this one class than either the Mentor or Madison sections.*

By itself, this result is not entirely conclusive as:

1. The TV group had a higher dropout rate than the other two sections, perhaps serving to trim the poorer students out who might have continued along the traditional setting.
3. G.P.A. was based entirely upon exams in the TV groups, while in the other classes, there were some additional sources of grade performance such as attendance of the management lecture series.

A second form of analysis was conducted by Research and Development which consisted of the one-way analysis of variance among only the test source averages of all the students completing each of the three classes (Madison, Mentor, and TV group). In the analysis, test performance was the dependent variable and test setting (Madison, Mentor, or TV) was the independent variable.

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[3] It should be mentioned that the lack of a rigorous experiemental setting resulting in "normal" classroom situations probably served to reduce many traditional forms of external validity such as the interaction of testing and reactive arrangements.

[4] For other examples of this kind of action based research, I refer you to Stanley and Campbell, *Experimental and Quasi-Experimental Designs for Research*.

The reader should note that with an F of 5.343 (significant at the .007 level), the three groups differed enough from each other to say that the type of delivery (TV versus traditional classroom) was a statistically significant factor in effecting test performance.

As a group, TV students had a significantly higher test score performance on the same material with the same questions than their conventional classroom colleagues.[5]

The higher dropout rate no doubt may have had some effect here also. But it is certainly possible to say that results seem to strongly suggest that:

The absence of a traditional classroom setting and the use of a professionally designed TV package may not impede performance of students.

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[5] The ETA, or correlation between type of delivery and test performance, was .32 which is a moderate association.

Article 36

"A Pilot Test Evaluation of *The Art of Being Human*"

by
Richard P. Janaro

THE ART OF BEING HUMAN can be a total program—an interdisciplinary, issue-oriented one semester course presenting broad perspectives in the humanities to college students or to members of the community, or it can be a library of resources in the humanities. The modular structure guarantees maximum flexibility. Each module represents a week's work, and none of the modules refers to those which have preceded or will follow (though there are implied connections). Instructors may offer the program as designed, rearrange the order, or substitute topics which better suit their needs.

The existing order, which is reflected in both the textbook and the student study guide, is designed to create a sequence of insights, leading to a synthesis yielded by Module XV, *Freedom: Humanists versus Determinists*. The issue of freedom—whether it does in fact exist and, if so, what responsibility it places on our shoulders—struck the course team as being crucial. Indeed freedom—the right to enrich one's life, the right to make critical choices among significant options—seemed to us to be the essence of humanism.

To dramatize the issue of choice, the course team strove to emphasize in as many modules as possible a this side/that side (or yin/yang) principle. We hope the student will reach the conclusion that since nothing is permanent, a closed-minded view of any issue would mean a betrayal of one's essential humanity. Hence: all classical music is probably not better than all rock 'n roll; the view that love is a fool's paradise is probably no better than the view that true love must surely be waiting around the corner along with Mr. or Ms. Right.

There is a deeper purpose for the pendulum approach taken, and this will be more precisely explained in the following section of this manual. Here it is only necessary to point out that the philosophy of the course views alternation as a healthy and integral element in the art of being human.

Besides, the principle of alternation, of polarity, precludes the possibility that any course design team may impose one dominant philosophy (say, behaviorism or existentialism) upon the student. True, the choices involved in any given module had to be predetermined, but conscientious designers can do no more than set forth matters in the most realistic and honest way they know.

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From Richard Paul Janaro, "Foreword," *Instructional Guide for the Art of Being Human*, pp. 1–17, © 1979, Miami-Dade Community College. Used with permission of Miami-Dade Community College.

The fact that eleven persons were making the decisions also helped to keep esoteric viewpoints out of the deliberations. In any event, since the principle of polarity assumes the importance of argumentation, the instructor may freely take issue with any of the ideas, or sets of choices, and still be faithful to the spirit of humanism, which is, after all, the art of keeping oneself open to life.

So concerned were we that THE ART OF BEING HUMAN would strike responsive chords in participating faculty and students, so open were we in our desire to avoid well traveled roads, elitism, and the vested interests of specialists that we decided to subject the entire program to a thorough pilot test before any of the components became widely available. Six faculty members from Miami-Dade Community College volunteered their services, and, through a most fortunate chain of circumstances, the Humanities Department of Daytona Beach Community College discovered the course and offered to participate in the testing. All in all, eight instructors and about 300 students were involved in the "sneak preview." Feedback from everyone was eagerly sought and acted upon. As a result, changes were made in some of the TV programs, and many important additions and deletions led to an extensive alteration of both text and student guide. There is little doubt in our mind that THE ART OF BEING HUMAN reflects the incredible range of input from those who gave and those who took the course. (As a matter of fact, the dividing line between them became somewhat fuzzy.)

The results of the pilot test indicated that the course can be highly successful either as a telecourse for the external student who almost never comes to the campus or as an alternative version of a classroom course in general education humanities.

Background of the Pilot Test

The pilot test of THE ART OF BEING HUMAN was conducted at both Miami-Dade and Daytona Beach Community Colleges during the fall term of the 1978/79 academic year.

The purpose of the test was to determine how the program might work as a general education introduction to the humanities. Both institutions maintain open-door policies, and both have students of highly varied backgrounds and degrees of academic proficiency. While THE ART OF BEING HUMAN was not designed to be a diluted, simplified presentation of the humanities, it carries only the usual prerequisite for such courses: at the most, two semesters of freshman composition. But composition can even be taken simultaneously. Our assumption was that human beings of average or higher intelligence should be able to complete the program successfully provided they did the reading and viewed the TV tapes diligently.

Both institutions accepted the program as an equivalent to some existing humanities course. Department chairpeople notified their staffs of the experiment, and faculty were assembled on a volunteer basis. Because one requirement was that each faculty member would submit test items and attend regular meetings on the progress of the course, the administrations of both schools provided either release time or overload points. In most cases, faculty chose to have a reduced load instead of extra remuneration.

One condition set forth by the administration of each of Miami-Dade's three campuses participating in the experiment was that the course be shown to fulfill all or nearly all of the minimum learning objectives for the equivalent course. Since it was ascertained that the condition was met, the course team believed that a meaningful comparison could be made between student performance in the pilot test and that evidenced in the equivalent courses.

At Miami-Dade approximately 250 students were enrolled in six sections of the course; average class size was about 40. This number approximates the workable size for standard courses in general education humanities. No attempt was made to "screen" the students or even inform them at the time of enrollment that they were being admitted into an experimental section of a new program. The reasoning was this: except for the minimum learning objectives, no two sections of general education humanities are ever exactly alike. There are no departmental texts or examinations. Hence all students face the same random odds when they enroll in any section of humanities.

At Daytona Beach, however, the course was advertised in advance as THE ART OF BEING HUMAN and as "Humanities on Television." All potential enrollees were given a brief description of the innovative nature of the program. The average size of the two sections was 20, which, the course team was told, was a little smaller than normal for general education humanities. The size was, however, not *significantly* small.

At organizational meetings between the faculty of both schools it was decided that all sections would read the first 15 chapters of the text, made available in a preliminary offset edition, as well as the entire study guide, and would view all 30 of the videotapes. We agreed that the amount of work might exceed what was required in some sections of humanities, but we saw no point in testing any but a complete program. Even though at the first meeting of the classes students were informed what the reading and viewing loads would be, there was no mass exodus to other sections. As a matter of fact, quite the reverse happened. Most of the faculty noticed a great deal of enthusiasm for the program and what it appeared to promise.

Because of the smaller class sizes at Daytona Beach Community College, the faculty members there decided to coordinate two strongly contrasting approaches to the course. One section met scrupulously three hours per week. Tapes were shown on two of the days, and general discussions of the module were conducted during the third class period. Students in the other sections were asked to view the tapes in the Learning Resource Center at their own convenience and were given the option of attending in-class discussions. In other words, the second section simulated some of the conditions of the telecourse taken by the external student.

Neither of the Daytona Beach instructors reported poor daily class attendance. Those who did not have to come to class, did so because they either enjoyed the discussions or were grateful for the chance to ask questions about the text and the video programs. The course team drew the inescapable conclusion that, when THE ART OF BEING HUMAN is offered solely as a telecourse with few on-campus meetings, some provisions must be made for maintaining ties between instructor and student. It is clearly not a program that should operate autonomously, nor was it our thought that humanists would welcome such a course.

The Miami-Dade instructors reported that their students often complained about not receiving a "fair share" of the instructor's time, especially since all videotape viewing had to take place in the classroom. This meant that the limited time devoted to discussion and the numbers who might need special attention created problems that were often frustrating to both faculty and students.

The inescapable conclusion reached here was that, when THE ART OF BEING HUMAN is offered as an on-campus classroom course, ample time for discussion must be allowed even if some tapes, or modules, have to be omitted. The issues involved create enormous interest on the students' part, sometimes controversy to the point of heated debate or even hostility. After all, when you are dealing with matters like love, death, and the question of God's existence, you are bound to find that very fixed and deep rooted beliefs are being stirred and perhaps challenged.

Students in the classroom will want to voice their objections or at least to give vent to their feelings on some of the subjects.

One Miami-Dade pilot test instructor recommended that some of the videotapes be omitted in favor of having more time for class discussion. Another took time to meet with groups of students in her office. At Daytona Beach the instructor who made class attendance optional, indicated that oftentimes the discussion on a certain tape continued until late into the afternoon.

All of the Miami-Dade faculty members reported continual feedback from students, sometimes quite negative. Statements like "We never really finished talking about last week's subject, and here we are facing another one" were frequent, as well as "There is too much material to sort through. It's hard to get ready for the tests." At the same time, nearly all of the students who took the first test were on hand for the final, suggesting that when the *opportunity* to communicate matches the need to communicate, students tend to remain satisfied with a course.

At Daytona Beach, where the smaller classes allowed for considerable expression of student thought and feeling, instructors reported a rather continuous flow of protest, agreement, or disagreement, and suggestions for improvement, either in the print material or the videotapes. "I didn't understand this" and "How can they say that?" were common remarks.

The Project Director of the program and the authors of both the text and study guide kept in constant touch with the feedback; alterations were made, much in the manner of a play's out-of-town tryouts. One videotape was completely redone, from script to production. Substantial changes were made in several others. Both text and study guide, however, most profoundly reflect the suggestions from teachers and students alike. There must surely be very few courses in which print support owes so much to input from those actively participating in the program.

Results of the Pilot Test With Some Hints for All Users of This Course

Examination scores and final grades do not a course make, nor do they necessarily represent comments on or solutions to the problems a course may have. Everyone knows that, though 90% of students enrolled in a course may achieve a grade of "A," the course could well have been a hideous bore or an insult to the participants' intelligence. It could also have been so stimulating and exciting that the participants put forth a phenomenal effort.

For this reason, the course team was not concerned only about final grades as such. We were interested, rather, in getting the whole picture, which we divided into the following components:

1. minimum performance requirements
2. the examination questions
3. the amount of work required
4. the readability and usefulness of the text
5. the quality and usefulness of the videotapes
6. the quality and usefulness of the classroom instruction
7. the quality and usefulness of classroom discussions
8. the average daily attendance in this course relative to that in equivalent humanities courses
9. attrition and overall performance relative to those in equivalent humanities courses

Minimum Performance Requirements

In a course as flexible as THE ART OF BEING HUMAN it is impossible to create a set of minimum performance requirements that work in all instances. Each institution must decide what it wants from participating students. After conducting an all-day preliminary meeting at Daytona Beach, Florida, the pilot test faculty decided upon these requirements:

1. The student had to pass three one-hour examinations with a satisfactory score.
2. The examinations would consist of both multiple-choice and short-answer essay questions.
3. The multiple-choice items would measure the student's cognitive growth from reading the text and study guide.
4. The short-answer essay questions would allow the student to express affective reactions to the videotapes.
5. There would be a fourth, or comprehensive, examination, offered at the discretion of the instructor as an option for students who wanted the chance to improve their overall class standing.
6. One Miami-Dade instructor required all students to attend one of the drama productions on his campus and submit a review, utilizing guidelines that he developed.

The first examination covered Modules I through IV and consisted of twenty-five multiple choice items and five short-answer essay questions. On the objective section of the test, the mean score was 13.29 and the reliability index, .77. This second figure tells us whether a test is adequately tapping the resources of the good student. As you can see, the index, while respectable, was not a matter for rejoicing. Nor did we believe that a mean score of just over 50% was unimprovable.

When canvassed, the majority of students indicated they would have preferred more multiple-choice items. A testing specialist, assigned by Miami-Dade to work with the pilot test faculty, concurred in this view, adding that both mean scores and reliability indexes tend to rise as the number of test items increases.

What "saved" the students was the generally higher score each one achieved on the essay section of the examination. Since there were no clearcut right and wrong answers, the student was rewarded with points so long as he or she demonstrated genuine involvement with the videotapes. It was decided to expand the multiple-choice section to 50 questions, while retaining the essay section.

Examination II, which covered Modules V through X, saw better results. The reliability index jumped to .90, while the mean score of the objective section of the test was 28.62 out of a possible 50. Even more important, perhaps, scores on individual items showed that, with a few exceptions, the options were well enough balanced so that the good students were able to discern the correct response, while the ill prepared students had difficulty guessing their way through the test. Overall, far fewer students complained about Examination II.

At the conclusion of the first test, instructors announced to their classes that no decision had yet been reached relative to the curving of grades (If you prefer the technical distinction, we had not decided whether to use norm-referencing, which would curve the grades or criterion-referencing, which would establish absolute minimal scores for every grade.) After Examination II, the pilot test faculty agreed upon norm-referencing by section in view of the highly divergent backgrounds of the students. (Criterion referencers, by the way, do not agree that norm-referencing by sections makes sense in an open-door institution.)

Examination III, covering Modules XI through XV, brought a mean score of 31.55[1] out of a possible 50, and a reliability index of .88. By this time, most students had apparently found the formula for making the course work. They seemed to be reading and viewing more diligently. Moreover, the norm-referencing was very much to their liking and seemed to reduce the threat the course had posed for some at the beginning.

Because so many had made low scores on Examination I, the entire pilot faculty voted to offer the optional fourth or comprehensive examination. Those who were satisfied with the grade they were making could go home a day early. Those who wanted a substitute for their poorest grade or a make-up test or who hoped to improve their grade, could take the examination if they wished. Like the others, the comprehensive had 50 multiple-choice items, but there were no essay questions. For the first time in the course affective responses were handled through multiple-choice, a situation which created some problems. But the course team believes it learned a great deal from the experiment. The current student guide contains both cognitive and affective multiple-choice items representative of the kind of questions which had some success with the students in the pilot test.

Examination Questions

While overall numerical scores in the four examinations compared favorably with overall numerical scores achieved in objective tests by students in equivalent courses, the pilot faculty and the course design team studied the computer breakdown of student performances on each item of each test. In this way poor questions were discarded. A poor question is one which is either too easy, indicating that the incorrect responses are not challenging and do not seriously discriminate between those who are and those who are not prepared, or too difficult or ambiguous, so that the generally high-scoring student is hard put to discern the supposedly correct response. A predominance of such questions creates a low overall reliability index. As we have seen, the pilot test examinations tended to be quite reliable; therefore we may conclude that most of the items worked.

On the other hand, this fact alone does not guarantee that the best possible selection of items was made or that the students were given the best opportunities to demonstrate what they had absorbed. In their feedback students, especially in the large classes, complained that, even though the examination questions often appeared fair *in retrospect*, they had felt threatened before each test because of the broad spectrum of possible questions that kept occurring to them. The larger classes also indicated that it was harder to prepare for an issue oriented test than one which covered specific segments of historical time.

The pilot test edition of the study guide did not contain the surveys found in the present version. These, we feel confident, will prove very helpful, especially to the external student or to large classes.

Several of the pilot test faculty distributed essay question topics prior to each examination and told their classes that five of the topics would appear on the actual test. The generally better performances were attributed to the lessening of student apprehension. In no case did a faculty member "teach to" to the objective portion of an examination, since the final selection of questions was made by the chairperson of the course team and a testing consultant.

The moral is *to be very clear about the sort of thing the students can be expected to demonstrate on tests and to make certain that tests actually do reflect the approach taken by the*

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[1] This is, of course, the raw mean score and acquried a different significance in each section.

instructor. It would be most unwise, considering the flexibility of the program, to compose examinations at the last minute without having made a strong point of what students should emphasize in their preparations.

If the course is taught as an honors program or in small classes, with ample opportunity for discussions, then examinations can even be discarded in favor of the Journal, suggested topics for which are provided in the module discussions.

Amount of Work Required

The text contains 16 chapters, of which the first 15 were assigned to all participating classes. The final chapter "The Critical Thinker," was optional, though, in the opinion of the course team, it contains important material and should be read, at least in part.

In addition, the students were told to read the appropriate chapter in the study guide and to be responsible for viewing the weekly tapes, either in class or in learning centers located in audio-visual departments.

Seventy per cent of the students polled at the conclusion of the course indicated that the amount of reading and viewing was excessive, or at least more than they were accustomed to in general education courses.

It should be pointed out, however, that at Daytona Beach Community College, where the two small classes were located, students generally did not feel that they had been overworked. It is quite possible that the sense of having a great deal to cover may correlate with the size of a class and the lack of time that can be given to the individual student. It may be closely related to the apprehension experienced by the students in the larger groups before each examination.

Here are some suggestions from the course team:

1. If classes are very large and opportunities for extended discussions will be limited, some sections can be skipped in some of the text chapters at the discretion of the instructor or participating faculties.
2. In classroom courses as a whole, a number of videotapes could be omitted in favor of more discussion time. Since all 30 tapes seemed necessary to the overall design, the course team naturally is reluctant to make recommendations on this score. Individual instructors or participating faculties will need to make their own decisions relative to the emphasis to be given and the examination questions to be used.
3. Since 75% of the students polled indicated that the videotapes were either very helpful or helpful compared to 81% who said the same of the text, one would be advised to rely on reading to a greater extent than viewing if a choice must be made. Obviously in the telecourses the balance between the two should be maintained.
4. The study guide has been thoroughly revised since the pilot test. It is shorter, the overviews are more cogent, and a Check List of Main Ideas is now provided for each unit. Students should be encouraged to read this material very carefully. The guide should substantially reduce the sort of concerns expressed by pilot test participants, and, because it clearly focuses on the major themes running through the course, it should help to justify the amount of work assigned.

The Text

As already mentioned, students tended to rely on the text quite strongly. But it should not be thought that the text exactly parallels the videotapes. They were developed cooperatively, it is true, but the book was also designed to stand alone as an alternate means of presenting the humanities to college students. In some institutions the text will be used independently of the video programs. This means that the instructor will not find a point by point correspondence between text chapters and video programs, though a great deal of parallelism exists.

The fact that students in the pilot test expressed concern over impending examinations can be partly attributed to the lack of the Surveys now included in the study guide. Clarity in the presentation of the text material will, however, be just as important as the Surveys themselves. In other words, instructors who are not following the program as presented in the study guide need to outline their main points and find those portions of the text which are relevant to them.

The pilot test indicated the importance of having a tight teaching package in advance.

It is for this reason that the present structure, outlined in the study guide, now exists.

Student evaluations reported that, on the whole, the text seemed quite readable. The fact that many points were made through references to the contemporary scene was regarded as a plus. Students also seemed to enjoy the magazine-type format with boxed material in the margins. This material is of three varieties: relevant quotations from other sources; important quotations from the text itself, which highlight major points; and running summaries or paraphrasing of whole sections. The instructor should point out at the beginning of the course that marginal boxes offer an excellent method of reviewing for examinations.

The Videotapes

Since the pilot test was conducted strictly as a classroom program and since all 30 videotapes were shown, it was not surprising to discover that students had trouble absorbing all of the material contained in the tapes. Some generalizations about these tapes and their function in the program can be made:

1. The tapes are mainly affective in their approach. With a few exceptions, they do not contain on-camera hosts making direct points. In many instances they deal with the issue through a narrative. It is what happens to characters that informs the viewer of the underlying meaning.
2. The tapes are designed as organic components of the entire program. They should be dealt with as if they were films rented as visual support for the curriculum. Almost every one of the tapes can stand alone outside the context of the module in which it appears. Within the context of the module it offers creative support for instructor or text. The tapes amplify the themes of the modules in many ways.
3. It is the "hunch" of the course team that visual experience, when it is stimulating and provocative, does more for students than can be directly measured through tests and even journals. Many of the tapes may leave residuals—kernels of ideas that won't burst open for months, perhaps years. The students ought to be advised of this possibility. They can even be told that they may not understand everything about every tape upon first viewing, but may look back later on this or that incident and suddenly say "So that's what it meant!"

4. Students polled were quite positive about the essay question method of responding to the tapes. The course team recommends that the practice be continued wherever and as often as feasible.

   Even in telecourses with large enrollments, students will have to come to the campus at least twice, preferably three times, a semester for examinations. While these will be mostly computer graded, a number of short answer essay items should not tax the supervising faculty members.

5. On the other hand, the tapes undoubtedly contain a good deal of cognitive information that faculty may well expect students to have absorbed. In the Course Information brochure or welcome letter that participating institutions or instructors may want to prepare, the rules for viewing the tapes should be clearly stated.

   Note-taking during the viewing process needs to be kept to a minimum. After all, nobody (except perhaps a critic) takes a notepad to a movie or watches TV at home with a pencil in one hand. Major cognitive points tend to announce themselves boldly, and students who view the tapes with a reasonable degree of concentration can be assured that they will retain the information they will need.

   As for the essay items, students can be told that a wide range of attitudes and feelings is possible but that their responses must reflect a sincere involvement with the tape in question.

   Not one student complained that a pilot test instructor's evaluation of an essay response was unfair. In nearly every instance involving partial or no credit for an answer, it seemed evident that the tape had not been seen at all, that the student's thinking was cloudy or that there was a real writing problem, usually quite familiar to the student by now.

6. Some evidence exists to support the belief that a strong visual component in a course, even affectively oriented, can have carry-over to cognitive areas, especially the ability to think straight. One reason may be a relaxation in the cognitive "section" of the brain. Forced concentration, especially when one is in no mood for it, often results in the tortured logic and vagueness with which writing teachers are familiar.

   Where this program is offered as a classroom course, instructors might well consider using tapes as a lead-in for an immediate writing assignment. (Topics for such assignments are provided in the module-by-module coverage later in the manual.)

7. In most cases, a relationship exists between the two tapes in a module, even though each one can stand alone. Module VI, for example, has one tape on Apollo, the other on Dionysus. In Module X, the first tape explicates tragedy, the second, comedy. Both of these examples involve an actual balance, where two contrasting conditions or experiences need to coexist within human awareness.

   In preparing to teach the course, the instructor should consider possible relationships between the tapes—assuming that both will be used, of course—and make certain the students are aware of them.

   The strength of the relationship (as in Apollo and Dionysus) may well be used to determine in which modules pairs of tapes need to be shown.

Classroom Instruction

Students in the pilot test program tended to appreciate their classroom instructor. Most indicated they probably would have had some trouble with the course had it not been for the guidance provided. This attitude supported the view that, because of the amount of time devoted to tapeviewing, there was often insufficient discussion of important points.

With the revised study guide in hand, the conscientious external student enrolled in the telecourse should be able to steer himself through the program. In the classroom course, however, a different relationship between student and material occurs with the teacher as catalyst. It can become a very different program, but one equally as valid.

The classroom instructor may take issue with ideas, statements, or interpretations. It should be made clear at the outset that both text and videotapes represent points of departure. The classroom instructor becomes a course component, introducing original perspectives wherever desirable.

While the pilot test faculty agreed to administer program-wide examinations, some of them gave weekly quizzes on what had transpired in class. In this way some of their own input was reflected. As the program is utilized in varying settings, it can become deeply personalized to suit the needs of a given classroom instructor. When this happens, the student deserves to be told how much of the total learning experience will depend upon the text, how much on the tapes, and how much on the instructor's lectures.

Classroom Discussions or Discussion Groups

As we have seen, THE ART OF BEING HUMAN invites discussion—so much so that some of the pilot test instructors indicated they either did continue or could have continued the class meeting for several hours. Obviously the need students have for expressing themselves on many of the issues raised was anticipated by the course team. The opportunity for discussion can well be built into the evaluative mechanism of the program.

Students in classroom courses can be informed at the outset that participation in discussions will be figured into their overall evaluation. Or, if the class is large, small discussion groups can be organized on a semester-long basis. Specific tasks can be given at the beginning of a discussion period with the group leader asking to submit a summary of what the group generally said, either orally or in writing. Some pilot test instructors had great success using audiocassettes and spot checking them to make certain all participants contributed something to the discussion. Discussion topics can be taken from the teaching outlines provided for the individual modules.

Attendance

All institutions engage in research on classroom attendance. There are figures for general education courses, vocational courses, and courses in a major subject. Attendance varies with the time of the day or night, the season of the year, and both the popularity and effectiveness of a given instructor. There are in fact so many variables that definitive conclusions are difficult to make relative to average daily attendance for the pilot test program.

One instructor reported that attendance in the pilot test course was definitely not as good as that for equivalent courses he was also teaching. Others reported better than average attendance. There was some correlation observed between test performances, overall final grades, and average daily attendance. It's advisable to stress to both telecourse and classroom students the importance of finding out what is going on at all times. Information on where and when tapes can be viewed by individual students should be made readily available, and students should be reminded of the need to stay caught up on their reading. One instructor who gave short weekly quizzes, reported 100% attendance each day.

For the external student telephone hotlines should be accessible at widely publicized times of the day or week. Commitments to answer the phones should be scrupulously kept. An ongoing snag in television education is the loss of contact between student and campus. With the amount of material in THE ART OF BEING HUMAN, such a loss could be disheartening indeed.

"Attendance" in a telecourse is ultimately measured by attrition. Students who fall behind or who try to see all of the tapes and read the whole text the week before the final can fall by the wayside. There is a certain rhythm to taking a telecourse, and an introductory on-campus seminar, to be discussed, should be offered to help the students find it.

Attrition and Overall Performance

THE ART OF BEING HUMAN pilot test faculty lost only 15 students from the first to the final examination; however, the total attrition was around 30%, a figure not inconsistent with general education statistics gathered in community colleges around the country. Like attendance attrition can be analyzed from the standpoint of many variables, but it is fairly safe in this instance to say that neither the course itself nor the quality of instruction could have been largely responsible for the loss of students. In other words, the students who took the first test generally stayed with the course until the end *even if the first grade was very low*.

General education teachers, especially in urban institutions, are familiar with the pattern. A significant number of students will sign up for a course and never show up for even one class. Often a drop in attendance can be noted from the first to the second week, so that at the time of the first examination, one is teaching a relatively constant group, which can be as much as 40% smaller than the original enrollment figure indicated. Those who have disappeared never really got their feet wet, and this cannot be interpreted as a genuinely negative response.

True, some students wander away at the beginning because a course *sounds* as if it is not for them. Perhaps some of the pilot test instructors made too much of the non-traditional nature of the course or the fact that this was an untried program. At all events, we can profit from the one really significant attrition factor—the drop from original enrollment to first test—and make some generalizations:

1. The course seems to have abundant strength, so that there is no need to make it sound *suspiciously* experimental. It is not in fact very experimental. It is rooted in basic human psychology. Students should be told that the course is really for and about them.
2. It is wiser to open up on a positive rather than negative note. Instructors should talk about what the course is and does and what is expected of the students, not about how the course differs from so-called "traditional" courses. In most cases, students have not taken the other courses, so they can not make a comparison.
3. If the program is offered as an on-campus classroom course, the role of the video component should be clarified at the outset. General education students often become discouraged at the thought of so much video, for in their past experience they will no doubt have watched a great deal of television that really *was* a substitute for a teacher and have become understandably scornful of the medium.
4. In the classroom a proper introduction to each tape is desirable. Human contact should be made at the beginning of the class hour and the tape fitted into an identifiable context.

5. Since telecourse attrition rates tend to be very high anyway, a contact method needs to be devised and consistently utilized. For this reason suggested responses to the study guide Surveys are contained in this manual. All students should be encouraged to mail or hand in these Surveys, and some form of feedback should be provided. Letters can be sent out to students not answering the Survey questions, written in a tone that suggests all is not lost.
6. One very good reason for encouraging students to stay with the program is that it does seem to have a positive and beneficial effect on those who do. After all, it *was* designed to be helpful to people.

If final grades serve as an index to the overall performance of a student in a course, then we may say there were a number of outstanding performances in the pilot test. The instructors, as was pointed out, norm-referenced their grades, but only after discussing the matter with their classes and asking for recommendations. The majority of students voted for the curve, saying they did not want to be competing against people in other sections and even in other cities. The course team, reviewing the grade distribution, could only conclude that norm-referencing produced what norm-referencing always does: a bell curve. Many educators, of course, point to the cynical implications of the bell curve and the assumption at the outset that some people are going to fail. True, the low grades were indeed low enough to justify failure, and some purists might not have approved of someone's passing with a numerical average of 60. But general education courses in community colleges always have these problems. THE ART OF BEING HUMAN neither solved all the problems nor created significant new ones.

What is probably most important to remember is the high retention of students from the first examination to the final and the low, very low, last-minute dropout rate. This indicates that for the typical community college student the program seemed to have worked quite well.

Students were invited to make additional comments on the backs of the evaluation forms. A very high percentage of those who took the trouble to write something (around 50% of the total enrollment) were very high in their praise of the course. A minority were vehement in their disapproval of the course, mainly on these grounds: the length of the reading assignments, the amount of TV viewing involved, and the fact that they hadn't learned much from most of the programs.

Students who did well throughout the course seemed uniform in their view that they had been challenged and stimulated, and six of the eight participating faculty indicated that the experience had been a profound one for them. One instructor said that her life had been completely altered, not necessarily by the material itself, but by the fact that she had been forced to confront some issues she had tended to avoid.

Article 37

"Student Evaluation of Telecourses in the Dallas County Community College District"

Introduction

The Center for Telecommunications of the Dallas County Community College District has offered televised courses for college credit since 1972. In the fall semester of 1980, ten courses were offered via television. Academic subjects covered by these courses included business, earth science, American government, American history, humanities, psychology, English and literature. The students who took them were regularly enrolled students who receive full college credit of 3 to 4 hours for each course.

Televised lessons for the fall semester began on August 30; the last examinations for the semester were held on December 14. Students were allowed to register for the telecourses either on campus or by mail. A Telecourse Information Booklet provided students with a catalog of courses, class schedules, and other helpful information.

The Learning Resources Center (LRC) at each college was provided with at least two full sets of video cassettes for each telecourse broadcast for students who needed to make up lessons or review material for tests. These were supervised at each LRC by a paraprofessional library aide, and were to be available during all LRC hours. Instructors at each college also used individual tapes as desired in their own on-campus classes. The selection of particular courses by the Center for Telecommunications for telecast depended on the results of surveys of enrolled students, of District faculty and administrators, and on national and regional studies by other producers and users.

Each course was considered a complete instructional system produced by a collaboration of academicians, educational designers, and media specialists. Professional producers, film directors, script writers, and editors prepared the telecourses from content narratives developed by academicians. Professional presenters auditioned for the part of the on-camera presenters; the faculty member responsible for content may also have auditioned.

Though the Center for Telecommunications coordinated telecourse operations, each college administered its own management system. One individual at each campus was designated telecourse administrator. Each course had a District coordinator who coordinated assignments, activities, and grading practices across the District, wrote a student newsletter, prepared tests, and provided an ongoing evaluation of the course. Each course also had at least one instructor per campus, who was fully qualified to teach the subject in a traditional classroom. The instructor conducted on-campus meetings; kept student records; contributed to the newsletter, to test-item

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banks, and to on-going course evaluation; graded assignments and essay tests; and determined the students' final grades. An important aspect of the instructor's duties was to maintain communication with students to answer their questions, prevent their alienation, and help them successfully complete the course.

The components of each telecourse included telelessons, a textbook, a Study Guide, examinations, and an extensive system to maintain communications with students. Students were required to attend an on-campus orientation during or before the first week of broadcasts. At orientation, the on-campus instructor was introduced, and course components, subject matter, and students' responsibilities were explained. Techniques for more successful completion of the course were also presented. Discussion meetings offered one to four times per semester allowed interaction with other students and the opportunity to question the instructor, and may have included special programs involving speakers or films.

Telecourse faculty kept regular office hours to confer with students via telephone or in person. The main information center for telecourses was a telephone hotline maintained on weekdays from 8 a.m. to 8 p.m. by special operators at the Center for Telecommunications. The operators answered procedural questions and provided information for present students and potential students. Content questions were referred to instructors, who were to call in regularly for their messages.

Students also received newsletters which were mailed before each test, three or four times in the semester. These contained information about tests, discussion meetings, schedule changes, campus seminars, and broadcast changes.

Each course generally contained 30 half-hour televised lessons, with a form that varied from course to course and lesson to lesson. A variety of techniques in addition to the lecture format were used in the lesson programs including in- and out-of-studio interviews, dramatizations, role-playing sessions, on-location visits, documentary segments, clips from movies, demonstrations, and animation. Two different lessons were broadcast each week for 15 weeks. Each lesson was broadcast a minimum of three times, with the intention of covering morning, evening, and weekend viewing times and once consecutively.

Each course included a Study Guide which oriented the user to the course and each lesson in it, and provided complete instructions. Lesson objectives, which were stated in operational terms, were presented for each telelesson. Opportunity for self-testing for learning accomplishments was provided with self-graded pretests and posttests. Study aids included listing of key words and phrases, and focus questions for lesson programs and readings. Assignments consisted of readings, study questions, lab assignments, and other activities, as well as supplemental enrichment activities and a bibliography. In most courses, the Study Guide was coordinated with commercially produced textbooks as well as the telelessons.

From two to four tests in the semester were scheduled for each telecourse. These were administered at each campus by regular campus personnel, often on Friday evenings, all day Saturday, and Sunday afternoons. Multiple forms of the tests were written by the course coordinator with assistance from the campus instructors. The Center for Telecommunications prepared a master copy for each instructor who was responsible for having copies made for his/her campus test center. Either the campus instructor or the campus test center may have graded them, using an answer key provided by the course coordinator. Test grades were mailed to students after each testing period.

Methodology

Instrumentation

Evaluation of the ten telecourses was accomplished by having students complete written surveys containing approximately 40 objective items. These questionnaires, which differed slightly for each telecourse, were printed on optical-scanning forms; Appendix A contains sample forms. The surveys for Psychology 105 and one of the two surveys used for History 102 differed somewhat from those used for the other courses.

In one section of the survey, students were asked to evaluate how helpful each of the following were in preparing for examinations: the orientation sessions, Study Guide, textbooks, television programs, and discussion sessions. Each was to be rated by students as being of "much help", "moderate help", "some help", "little help", or "no help".

Students were asked to rate the quality of various components of instruction. They were to check "excellent", "good", "average", "fair", or "poor", in response to the following components: unit and lesson topics, instructions for meeting course requirements, test questions, grading procedures, the hotline telephone service, newsletters, LRC or library services, testing center sevices, college store services, the campus instructor, and the overall quality of instruction.

On another section, students were to react to a series of positively phrased statements by choosing "strongly agree," "agree", "neutral", "disagree", or "strongly disagree". These statements concerned the amount of material covered, the time needed to complete assignments, the coordination of the Study Guide with the telelessons and tests, the up-to-date-ness of telelessons content, the learning value of the telecourse format, the availability of help from the instructor, the interest in the subject inspired by the telelesson, and whether the course would be recommended.

A series of multiple choice questions concerned why students enrolled in the telecourse, how they registered for it, and what their viewing locations and habits were. Other items asked students to indicate their preferred days and times for viewing, and how the telecourse experience affected their attitudes towards college.

Sample and Procedure

Students took their final examinations for each telecourse at the testing center on their campuses. As students returned the completed final examinations, they were to be asked by the testing center staff to complete the course evaluation survey and return it before leaving.

To reduce the chance that a student taking more than one telecourse would have to complete a separate survey for each course, not all courses were evaluated at each campus. For each course, from three to all seven colleges were chosen to receive surveys for that course.

A total of 150 surveys were sent for each course except Humanities 101 and Earth Science 117, for which 100 were sent, and History 102, for which 300 were sent. At each campus, from five to seven of the ten courses were evaluated. Testing center staff were asked to request students to complete the surveys until the supply of blank surveys they were sent was exhausted.

Table 1
Distribution of Evaluation Surveys

Course	Campus							Total	Total
	BH	CV	EF	EC	MV	NL	RL	Sent	Completed
Business 105	X	X	X	X				150	65
Earth Science 117	X*		X				X	100	50
English 101					X	X	X	150	83
English 102					X	X	X	150	19
Government 201	X*	X	X*	X				150	22
Government 202		X			X	X	X	150	137
History 101	X	X	X	X				150	70
History 102	X	X	X	X	X	X	X	300	104
Humanities 101	X		X	X				100	42
Psychology 105					X	X	X	150	122
						TOTALS		1550	714

Key
an "X" indicates that surveys were sent to this campus
an "*" indicates that none were returned
BH — Brookhaven College
CV — Cedar Valley College
EF — Eastfield College
EC — El Centro College
MV — Mountain View College
NL — North Lake College
RL — Richland College

In most cases, substantially fewer surveys were completed and returned than were sent to the campus. Table 1 indicates which campuses received surveys, the total number sent, and the total number completed and returned. Of the approximately 1,550 surveys sent out in all, about half were completed and returned.

The testing center staff reported that some students were unable or unwilling to spend the time to complete the surveys after finishing final examinations. In other cases, staff reported being too busy during the final examination hours to ask each student to complete a survey.

Table 2 presents the number of students who were enrolled on the 12th class day in each telecourse and the number who were still enrolled at the end of the semester. The last column contains the percentage of students who had been enrolled on the 12th class day but who withdrew before the end of the semester. In each telecourse, on the average, approximately 40% of the students who enrolled in the telecourses withdrew before the end of the semester. No attempt was made to survey students who withdrew before the end of the semester.

In Table 3, the number enrolled in each telecourse at the end of the semester and the number of completed evaluation surveys are shown. For most of the courses the samples were of adequate size, containing at least 20% of the students enrolled.

Table 2

Telecourse Enrollment on the 12th Class Day and at the End of the Semester

Course	# Enrolled on the 12th Class Day	# Enrolled at the End of the Semester	% Who Withdrew before End of Semester
Business 105	500	300	40%
English 101	430	225	48%
English 102	301	139	54%
Government 201	649	286	56%
Government 202	392	260	34%
History 101	608	336	45%
History 102	434	250	42%
Psychology 105	422	254	40%
Humanities 101	282	222	21%
Earth Science 117	135	85	37%

Table 3

Sample Sizes for Telecourse Evaluations

Course	# Enrolled at the End of the Semester	# of Completed Evaluations Surveys	Sample Size % of Students Enrolled Who Completed Evaluation
Business 105	300	65	21%
English 101	225	83	36%
English 102	139	19	13%
Government 201	286	22	7%
Government 202	260	137	52%
History 101	336	70	20%
History 102	250	104	41%
Psychology 105	254	122	48%
Humanities 101	222	42	18%
Earth Science 117	85	50	58%

Results

Overall Results

For all ten courses, a total of 1,550 evaluation surveys were sent to the seven DCCCD campuses. Of these, a total of 714 were completed and returned. Table 4 contains a summary of the responses made by students on each item of the survey. Only those items which appeared on the questionnaires for all of the courses are presented; specific items which were used for only one course are not presented. The number of students who completed each item (sample size) is also shown. Between 452 and 673 students completed each item.

Table 4

Survey Responses for all DCCCD Telecourses

Item	Responses (Given as %'s)					
	Much Help	Moderate Help	Some Help	Little Help	No Help	Sample Size
Orientation Session	23.7	23.2	24.4	15.0	13.7	665
Study Guide	70.9	17.7	8.6	2.5	.3	673
Textbook	39.2	31.3	16.4	8.6	4.5	950
Television Programs	34.2	34.8	20.2	7.0	3.8	660
Discussion Session	16.4	16.4	16.6	9.9	40.7	452

Item	Responses (Given as %'s)					
	Excellent	Good	Average	Fair	Poor	Sample Size
Unit and Lesson Topics	34.0	46.6	15.2	2.9	1.3	667
Instructions for Meeting Course Requirements	29.7	44.8	19.8	3.6	2.1	665
Test Questions	20.6	38.7	21.9	11.2	7.6	670
Grading Procedures	29.2	42.8	18.7	5.1	4.2	622
Grade Report	29.8	41.3	18.6	5.6	4.7	661
Hotline Telephone Service (if used)	28.1	39.1	18.0	7.0	7.8	516
Newsletters	25.9	38.7	21.1	8.8	5.5	659
LRC-Library Services (if used)	44.4	33.1	14.8	4.7	3.0	505
Testing Center Services	40.7	36.2	16.5	4.1	2.5	638
College Store Services	25.4	37.6	25.4	7.7	3.9	614
Campus Instructor	35.4	33.6	18.8	6.5	5.7	616
Overall Quality of Instruction	27.4	43.8	18.6	6.0	4.2	665

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Sample Size
The course covered an appropriate amount of material.	35.3	50.8	8.2	3.1	2.6	651
The time need to complete the assignments was reasonable.	27.0	51.8	11.9	6.9	2.4	666
The Study Guide was well coordinated with the television programs.	34.9	44.5	12.0	6.5	2.1	668
The lesson objectives in the Study Guide were clearly stated.	34.7	46.9	13.4	3.8	1.2	663
The tests covered the material described by the lesson objectives.	26.3	42.2	18.2	8.8	4.5	670

Table 4—*Continued*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Sample Size
The content of the television programs was current and up to date.	31.9	46.2	15.6	4.1	2.2	665
The television programs helped me develop interest in this subject.	34.5	34.2	19.6	7.8	3.9	667
The telecourse format is a good way for me to learn.	35.1	33.5	19.9	6.0	5.5	669
Help from my campus instructor was available when I needed it.	35.9	36.0	20.7	3.9	3.5	623
This course was one that I will recommend to friends.	33.1	30.2	19.2	7.1	10.4	652

	Response (%)	Sample Size
Why did you enroll in this course?		522
Required for degree	67.6	
Elective for degree	7.3	
Relates to current or desired job	6.9	
Personal growth	14.8	
Other	3.4	
Why did you take this course as a telecourse?		633
On-campus sections were full	7.1	
On-campus sections were at inconvenient times	27.5	
Could not take an on-campus course	35.1	
Prefer telecourse over on-campus course	30.3	
Would you have enrolled in this course if it had not been offered as a telecourse?		518
Yes	57.9	
No	32.6	
No opinion	9.5	
How did you register for this course?		517
By mail	20.3	
Regular on-campus registration	69.8	
Late on-campus registration	9.9	
How has the telecourse experience affected your attitude toward college?		514
Will begin a degree program	8.6	
Will continue a degree program	46.3	
Will enroll in more courses without a degree program	6.2	
Will stop going to school	2.3	
No effect	36.6	
Where do you normally watch the TV programs?		515
At home (or in a private residence)	68.5	
In the LRC-Library on the campus where enrolled	9.9	
In an LRC-Library on a campus where not enrolled	.8	
In a public library	.8	
Both at home and at one of the LRC's or libraries	20.0	

Table 4—*Continued*

	Response (%)	Sample Size
How do you prefer to watch program A and program B during a given week?		516
Singly, at separate times	14.2	
In pairs, one following the other	64.3	
Singly or in pairs, it doesn't matter	21.5	
How many times do you generally watch each TV program?		516
Not at all	4.8	
Once	74.8	
Twice	17.0	
Three times	2.1	
Four or more times	1.3	
Which is the best day for you to view the TV programs?		498
Monday-Wednesday	15.3	
Tuesday-Thursday	13.6	
Friday	2.4	
Saturday	41.0	
Sunday	27.7	
Which is the best time of day for you to view the TV programs?		501
6:30-7:30 a.m.	16.4	
8:00-10:00 a.m.	25.7	
10:30 a.m.-12:30 p.m.	19.6	
1:00-3:30 p.m.	24.3	
11:00 p.m.-12:30 a.m.	14.0	
Do you plan to acquire a cable television hook-up?		513
Yes	38.0	
No	33.9	
Do not know	28.1	
Would increased viewing times via cable television help you to more easily view TV programs for telecourses?		510
Yes	56.9	
No	15.9	
Do not know	27.2	

On the survey most (68%) students reported enrolling in the course they were evaluating to satisfy a degree requirement; 7% more took it as an elective, 15% for personal growth, and 7% because it related to a current or desired job. When asked why they chose the telecourse option, their reasons were split fairly evenly among the following: "on-campus sections were at inconvenient times," "could not take an on-campus course," "prefer telecourse over on-campus course." An additional 7% reported taking the telecourses because the on-campus sections were full. Approximately 58% stated that they would not have enrolled in the course if it had not been offered as a telecourse; 33% said they would have, anyway. Though most (70%) students reported registering for the courses during regular on-campus registration, 20% did it by mail and 10% did it on-campus at late registration.

When asked to rate the various components of the course, between 75% and 81% rated as "excellent" or "good" the unit and lesson topics, the instructions for meeting course requirements, LRC-library services, and testing center services. From 63% to 72% rated the following components as "excellent" or "good": grading procedures, the grade reports, the hotline telephone service, the newsletters, college store services, the campus instructors, and the overall quality of instruction. The test questions were given the "excellent" or "good" ratings by 59% of the students who responded.

Students were also asked to indicate how useful some of the course components were in preparing for examinations. The Study Guides were considered the most helpful components, with 89% rating them as "much" or "moderate" help. Approximately 70% reported that the textbooks and the television programs were of much or moderate help in preparing for examinations; 47% awarded the same ratings to the orientation sessions, and 33% to the discussion sessions.

When asked to indicate their agreement or disagreement with a series of statements about the courses, between 78% and 86% responded by checking "agree" or "strongly agree" on these statements: "The course covered an appropriate amount of material," "The time needed to complete the assignments was reasonable," "The Study Guide was well coordinated with the television programs," "The lesson objectives in the Study Guide were clearly stated," "The content of the television programs was current and up-to-date." On the following items, from 63% to 72% agreed or strongly agreed: "The tests covered the material described by the lesson objectives," "The television programs helped me develop interest in this subject," "The telecourse format is a good way for me to learn," "Help from my campus instructor was available when I needed it," "This course was one I would recommend to friends."

On the surveys, students were also asked about their telelesson viewing habits. Most (69%) reported doing their viewing at home, though 11% stated that they viewed telelessons at an LRC-library, and 20% reported doing it at both locations. Three-quarters reported watching each program once, while 20% watched them two or more times; 5% stated that they generally did not watch the programs at all. Over half (64%) preferred to watch the two programs of the week in pairs, with one following the other. An additional 14% preferred to watch them singly, at separate times, and for 22% it didn't matter. Saturday was the best day for viewing for 41% of the students, and Sunday for 28%. An additional 29% preferred viewing from Monday to Thursday but only 2% preferred Friday. When asked to indicate the best time of day for viewing, from 14% to 26% chose each of the early morning, mid- to late morning, early afternoon, and late evening times listed. The two most favored times were 8:00 a.m. to 10:00 a.m. (26%) and 1:00 p.m. to 3:30 p.m. (24%). Approximately 38% reported plans to acquire a cable television hookup, and 57% stated that increased viewing times via cable television would help them more easily view their telelessons. To determine how the telecourse experience has affected their attitudes towards college, students were asked to indicate what their educational plans were after completing the course. For most students, the telecourse experience did not seem to have changed their plans: 46% announced their intention of continuing a degree program, and 37% said there was no effect. However, 9% reported plans to begin a degree program, 6% to enroll in more courses without a degree program, and 2% to stop going to school.

Discussion

For most of the courses, reasonable samples of the students who completed the course were obtained. The sample sizes for Government 201 and English 102 were considerably smaller than those for most of the other courses. However, because the survey results for the two courses did not differ markedly from those obtained for other courses it may be assumed that the small sample sizes did not have a highly detrimental effect on the validity of the results for those courses.

Because the samples were obtained on a volunteer basis, the possibility that those who refused to complete them may have held different opinions from those who cooperated must be considered. However, it is likely that those students with strong opinions would have taken advantage of the survey to express them.

In each telecourse, a number of students listed on the 12th class day rolls withdrew before the end of the semester. To investigate their reasons for withdrawing and obtain their judgements about the courses was beyond the scope of this evaluation.

Responses on most items did not differ greatly across courses. Most course components were rated fairly to quite highly by the students. The following generalization may be made about nearly all of the telecourses:

1. Most students enrolled because of degree requirements.
2. Most chose the telecourse option because of convenience rather than because on-campus sections were full.
3. Slightly more than half would not have taken the courses had they not been offered by telecourses.
4. Most students registered for telecourses during regular on-campus registration.
5. From 50% to 80% of the students rated each course component as "excellent" or "good."
6. The Study Guides were considered the most useful components in preparing for examinations, followed by textbooks and telelessons. Orientation and discussion sessions were considered useful by less than half of the students.
7. Most students viewed each lesson once.
8. Over half preferred to watch the two telelessons of the week in pairs, with one following the other.
9. Saturday and Sunday were considered the best viewing days for telelessons, while preferred viewing times varied considerably.
10. Less than half planned to acquire a cable television hookup, while slightly more than half reported that increased viewing times via cable television would help them more easily view telelessons.
11. Few students' attitudes towards college or their educational plans seemed to have been altered as a result of the telecourse experience.

Article 38

"Evaluation of Distance Learning Systems: Selected Issues and Findings"

by
Frances M. Aversa

Introduction

In a 1977 book called *Distance Education: A Survey and Bibliography* (Holmberg, 1977), the only discussion of evaluation was in relation to revision at the course level. The author chose to "avoid for practical reasons, the rather evasive and extremely difficult evaluation of distance education as a system." Recent grapplings with system-wide evaluation after concentrating primarily on evaluation in support of course development for six years lead me to believe that Holmberg's choice was a wise one. My charge in this discussion, however, is to explore evaluation of distance learning on the system level and not on the familiar ground of the course level.

Nevertheless, no evaluation of a distance learning system would be either complete or worthwhile without evaluation of its instructional materials and the quality of students' interaction with and response to those materials. Any discussion of the complexities of distance learning systems, therefore, must include some reference to course level evaluation.

Course Level Evaluation in Perspective

To begin on a perhaps unexpected note, I suspect that evaluation and, in fact, the whole instructional development process has been somewhat oversold to distance learning systems. That the reality falls short of the promise is less a result of any technical deficiency in the field's practitioners than of a mismatch between their functions and the fundamental financial and political realities of a marketplace in which the name of the game is survival. (Attesting to the survival theme, Daniel and Stroud (1981) have noted that by 1980 the signs of erosion in financial support for distance education had already become apparent. As they put it: "Governments around the world now had more pressing problems than expanding access to education. The squeeze was on" (p. 48).)

Following a decade in which evaluation of distance learning materials had a chance to endear itself to the potential budget cutters of the new era of fiscal austerity, the record is somewhat disheartening (again from the "survival" perspective). Heavily designed and evaluated courses

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From Frances M. Aversa, "Evaluation of Distance Learning Systems: Selected Issues and Findings," Presented at the Annual Conference of the American Educational Research Association, New York, March 1982. Used by permission of the author.

haven't really sold any better to academic institutions outside the producer than have others, nor is there much evidence that these courses actually teach more effectively, or are better liked by students regardless of the systems through which they're offered. We've learned that there is no such thing as a perfect course and that a purposeful student can learn from a relatively ordinary course while no amount of evaluation and revision of materials can compensate for lack of support in the rest of the system.

The caveat, of course, is that many believe the products we've evaluated are better *intrinsically* as a result of the process. Another is that we have never pitted the sparsely evaluated model against the same course more fully evaluated. But given the tenor of the times, intrinsic worth may not be enough to satisfy our critics.

Course level evaluation remains a desirable commodity, still designated as a required component in requests for proposals such as those of the Annenberg/CPB Project. While this period of grace continues, those of us who believe in such evaluation and earn our living by its practice need to examine it critically and cast in a more realistic light the extent to which it can be useful, what it can produce and the context in which it should operate to increase its value to the systems that sample its wares.

The Complexion of Course Level Evaluation: Learning, Affect and Retention

Contrary to what some may assume, surprisingly little of the evaluation of distance learning materials has focused on their teaching effectiveness, that is, on test scores. Certainly most of the formative evaluations that I and my colleagues have designed and carried out have, if anything, neglected this aspect of the courses, increasingly to our dismay. In fact, seduced by the seeming plight of both student and system removed from face-to-face contact with one another and, therefore, from the two-way corrective feedback that exists in the traditional teaching-learning paradigm, we have gone quite in the opposite direction. We have employed curriculum reviewers and content specialists, instructors and representatives of the students themselves to provide critical analysis of instructional materials in development. Though "instructional effectiveness" is what we are trying to assure, its operational definition has had far more to do with the inherent structure and form of the materials and their motivational impact on the student than with their cognitive outcomes.

Though alleging seduction by certain realities, I do not mean, in fact, to deny those realities. Teaching/learning effectiveness must include attention to both cognitive learning *and* affect. In a distance system, in particular, it does not take an overwrought imagination to predict that materials that are unappealing in either substance or form, difficult to navigate, inappropriately pitched in terms of student characteristics and abilities, tedious and otherwise lacking in stimulating and motivating qualities will neither facilitate learning nor provide an enriching experience for the student, even if "learning" *does* occur.

What we must consider, however, is that our initial concentration on the appeal of distance learning materials was based on a belief that such appeal was essential not only to *learning* in a distance mode but also to institutional adoption and continuing student demand for materials of equally high quality. None of these beliefs have been borne out in fact. Furthermore, though many of us wish to avoid a turn 180 degrees back to basics with disregard for enrichment and affect, we can't ignore the increasing emphasis on accountability and productivity nor the impatience for proof of the benefits of our design and evaluation labors and expenditures.

For one such benefit, some would appeal to research on student attrition or, as it's morbidly called in the British system, "student wastage." They would argue that the jury assessing the importance of the affective quality of distance learning materials (safeguarded by precisely the labors mentioned above) is still out regarding this crucial concern. Though we are still far from any conclusive findings, studies to date show only minimal evidence that improving the materials per se raises retention rates. For example, a study by Project REDEAL at Athabasca University in Alberta, Canada (Spencer, 1981), showed that improving the instructional design of a distance print-based course resulted in very limited gains in retention compared to improving the nature and timing of instructor feedback to the student. At Miami-Dade Community College the most dramatic effects its researchers have shown with regard to retention stem from the use of the computerized testing and feedback system called RSVP. Studies at the British Open University and by the Home Study Council in this country have shown that requiring early submission of a first lesson, that is, simply getting a student started in the system, has had significant effects on completion rates.

Does all of this mean that the instructional quality of materials that is in part assured by the kind of evaluation traditionally applied within distance learning systems is irrelevant and unnecessary? Though this is not necessarily the conclusion to be drawn, the evidence does point to the need for streamlining the process and rethinking both the reasons why we evaluate and the criteria by which we judge quality—in other words, refocusing our evaluative attention.

We need to evaluate only when the results will be used and when we have good reason to believe that such use will matter. Furthermore, we need to see the instructional materials we evaluate as an integral part of the whole system, as dependent as much (if not more) on their compatibility with that system and its support structure as on their intrinsic qualities or on either their affective or cognitive effectiveness when measured in isolation. Evaluation at the course level *is* important but fewer evaluation resources should be devoted to examining individual courses in minute detail with regard to their intrinsic worth than to examining students' and administrators' reactions to, interactions with and benefits from those courses as they operate within the context of the total system. Evaluation conducted within a complex system must regard each component part with a consciously relational vision.

A Word about Procedures

This discussion of course level evaluation has included little information about methods, procedures, etc. In 1976, the Division of Research and Evaluation at the University of Mid-America drafted a monograph on formative evaluation at the course level which is still available upon request.[1] Both UMA and the British Open University to mention only two systems, also have internal reports and documents available regarding summative evaluation or, more accurately, field tests of courses in use. The Maryland Consortium and other members of the Telecourse People can all provide information on methods and findings. Though the field must not lose sight of the validity, appropriateness and quality of its methodology, it is not wanting nearly so much for *how* to evaluate what it decides to, as it is for guidelines concerning *why* to do it, *when* to do it, *how often* and *in what relation* to other system components.

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[1] Available from the National Institute of Education.

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System Level Evaluation in Perspective

On the system level (as on the course level), a worthwhile evaluation cannot simply be added on after all the more "important" pieces have been put in place. Yet the primary focus of any institution, including distance learning systems, is seldom on evaluation and the collection of data. Particularly in the earliest stages of fundraising and fighting for survival, diverting resources to planning and implementing evaluation is unlikely to be a priority—until someone, whether a funder or potential funder, policymaker, the public, potential students, other friendly or not so friendly institutions or someone trying to do a job within the system itself asks for information either about the evaluation process or its findings. Eventually someone wants to know: "Who benefits from the system?", "In what ways?", "Why do they come?", "Why don't more come?", "Why do they or don't they stay?", etc. etc. These and others like them are all questions ultimately referred to someone called an evaluator or to an office of evaluation or institutional research. The questions come from a variety of sources, focus on a variety of system processes and products, relate to a variety of people and things within the system and to a variety of social, political and economic realities outside of the system and are satisfied for no two askers by quite the same presentation of information (McIntosh, 1974).

Many authors (Gooler, 1975; Knox, 1976; Wedermeyer, 1981), perhaps most notably Naomi McIntosh, (1973, 1977, 1978) formerly of the British Open University, have noted the complexities confronting the evaluator in a distance learning system, particularly a multi-media one. It is clear that we deal with an "untidy reality" considerably different from the agricultural botany model of research that has influenced several of the prevailing objectives-based, tests and measurements approaches to evaluation.

Combining Approaches

Much has been written on the application of alternative models to issues of educational evaluation (e.g., analogies to methods of legal arguments, investigative journalism, literary, art and film criticism, client centered therapy, ethical analysis and historical study). However, without belaboring the point, no one or two of these models alone are appropriate to distance learning as a system. Unfortunately, much of the academic hoopla that surrounds the attempts to establish these models within the intellectual evaluation community places the emphasis on technique, unintentionally diverting it away from what is most important: the purpose of the evaluation and the nature of the program or program component being evaluated.

The Politics of the System

Before looking more closely at some of the dimensions of evaluation within a distance learning system, it may be useful to reiterate a few points on the positioning of the evaluation process within an institution. To some these observations are by now truisms.

The first point is that evaluation is a political activity. I would agree with Barry MacDonald's (1976) statement that we must "understand its styles and approaches as expressions of different stances towards the prevailing distribution of power" in the surround of the system. This is particularly important for the internal evaluator, who is the primary focus of this discussion, mainly because without an on-going internal evaluation function the majority of the questions posed above would be unanswerable in any but the most desultory way. Acknowledging political forces, however, does not mean that the evaluator should surrender his or her ethical judgement to the power source of the moment. It simply means that the evaluator must at all times recognize as valid multiple perspectives and realities within and without the system and avoid searching for a single reality and portraying it as truth.

The second point which is certainly related to the first, I paraphrase directly from a stimulating though rather academic exploration of alternative evaluation models by David Jenkins (1978): The evaluation of distance learning systems requires as does any variant of institutional research "above all, people sharp at criticizing the internal logic of educational proposals and at monitoring the erosion of fulfillment of aspirations as these are put into practice." This is consonant with Scriven's (1971) analog for the evaluation process as one of a bridge game, placing evaluation "in a political arena, where participants bid for scarce resources of time, money and prestige" (Jenkins, 1978). Human, critical and analytical skills are at least as important as the technical ones. Unfortunately, the litmus test for the evaluator appropriately balancing human qualities of acidity and alkalinity is yet to be devised.

The third and final point is that evaluation is not an end in itself and should not be performed because someone thought it (or at least the appearance of it) was a good idea at the time. It should, for example, be feasible in terms of time and money, be important to decision makers and include components experience has shown to be worthwhile and fruitful (Kaiser, Mishler, & Hogan, 1981).

It is an unfortunate reality that a nominal evaluation function often exists within an institution (at least in the early stages) simply as a sop to real or imagined external expectations. As McIntosh (1977) states of the British system, the tradition of administrator as "enlightened amateur" dies hard. There is among some administrators the attitude that even if the evaluation function must exist *for political reasons,* its activities are unlikely to contribute in any significant way to administrative decision making. In this context, calculating evaluation expenditures as some ratio of total expenditures is a common practice regardless of how much more or less evaluation the situation requires. This ignores the fundamental relationship that should exist between the cost and extent of the evaluation procedures and the value of the information they produce.

Part of the value of an avowed commitment to evaluation is undeniably in political appeasement terms but evaluation expenditures should be determined in relation to the needs of decision makers and the real expectation and belief that the evaluation will be useful in addressing those needs. Unfortunately, it is not uncommon for policymakers both internal and external to distance learning institutions to be unable to identify specific decisions for which they would use even the information they themselves designate as important. Many policymakers seek evaluative information for reasons other than decision making, such as for advocacy or for personal opinion formation (Smith, 1976). I note this with the full realization that the internal career evaluator whose role is being abused, intentionally or otherwise, can often do little more than try continually to raise these issues to the collective consciousness of the institution and then get on with his or her tasks as they can best be defined and implemented.

Evaluation and Institutional Research: To Distinguish or Not

So far this discussion has used the terms evaluation and institutional research somewhat interchangeably. The latter, however, is a broader term, encompassing not only evaluation in support of decision making but also the routine collection of basic statistical data—a monitoring activity—and research and development, sometimes called action research. This last might include the testing on a small scale of alternative instructional strategies to put another minute dent in the question "Which is better?" It might also include attempts to define quality and its indicators within distance learning systems and extend to research on evaluation processes, social and cultural implications and alternative management systems (Gooler & Sell, 1975).

Though potentially exciting and useful to program planners action research is not truly evaluation. Nor is "monitoring" evaluation in the strictest sense. A management or student information system is an all but indispensable aid to both evaluation and research activities but is not itself evaluation.

The distinctions among the activities of institutional research, monitoring and evaluation are blurred, however, and adhering rigidly to them is not particularly useful. What is important is that we see evaluation in a distance learning system as extending far beyond a myopic focus on curriculum and course level concerns only and as appropriately incorporating any number of alternative techniques and methodological perspectives.

We must acknowledge that most distance learning systems are complex public entities subject to external scrutiny and therefore compelled to gather much accountability information as well as information that involves both critique and portrayal. Through a combination of approaches we hope to open the system to more in-depth understanding and thus aid in on-going decision making for improvement.

But how *do* we determine what to evaluate, by what criteria and against what standards? This question can probably never be answered definitively, even for a single system. And there is even less possibility of answering it in general. An approximation to an answer, however, comes from an analysis of the particular context of a given system, the nature of its funding, its organizational structure, its interinstitutional relationships, its instructional delivery and media mix, its students and its own aspirations.

In our attempts to examine and evaluate distance learning as a system, we have studied a number of components. A laundry list would include such things as institutional characteristics and their economic, political and social implications, institutional goals and their achievement, curriculum, course components, delivery systems, course development and acquisition procedures, faculty training and development, student learning and satisfaction, student retention on both a course and institutional level, the status and progress of past graduates, public awareness and institutional image, the effectiveness of management procedures, and student characteristics and goals. More in the realm of research we have made occasional forays into studying media alternatives and we've dabbled at examining how adults learn in a distance system. (Our results are meager.) We've used tests, surveys, interviews, observations, critical reviews and participant observations. We've attempted to balance formative and summative.

Getting Started: The Importance of Basic Information

Admonitions began nearly a decade ago (Lent, 1974; McIntosh, 1973) to devote funds deliberately to experimentation and to establishing baseline and continuing data gathering early in system development rather than waiting for summative evaluators to intrude as Johnny-come-latelys and attempt to compare apples and oranges. These cautions still hold.

Naomi McIntosh, in a stimulating telephone conversation in July of 1981, addressed this issue. In 1971, Naomi, who came from the ranks of market research where a high premium is placed on information about consumer characteristics, preferences, etc., was embroiled in a clash of wits and philosophies with those who saw gathering this type of information as a monitoring function beneath the appropriate role and dignity of academic evaluation. We have learned, however, that we need basic information that will help us determine how and why a system works and must start planning for it long before we can actually examine it critically to satisfy either our own institution's or others' requests.

Naomi attempted to develop a system to obtain from students not only basic demographic data but also information about study habits, interests and other life style data. Such individualized information, student by student, would portray students' interactions with the system, including such factors as whether and how they were progressing and their reactions to the curriculum and administrative structure. Though there was eventual recognition at the BOU of the need for these data, the recognition came too late to allow the development of a system of comparable richness to that initially planned, because once an institution sets up a short term, nonideal system, it is extremely difficult financially and psychologically to stop it and create a different one. Particularly at the outset of the pioneering British Open University, institutional planners simply didn't know what they were going to need to know to satisfy later evaluation questions.

Findings, Hunches and Advice

All of us involved in the evaluation of distance learning systems should examine in detail the methods and findings of Naomi McIntosh and her colleagues, despite the different cultural context in which our own systems might operate. We can look at the OU experience and learn from the wealth of data it's collected. In the July conversation alone, for instance, Naomi shared some perspectives and findings with convincing authority.

First, with respect to getting started, Naomi commented on relations with the computer staff, noting a situation that might apply equally to other divisions of an institution. She noted that at the beginning the computer staff was totally separate and how well the two departments were able to work together depended absolutely on the backgrounds and temperaments of the individuals involved. They were preoccupied with problems of making it work and they tended not to see working on institutional research as a high priority. For several years it was quite difficult for Naomi's staff to get its share of resources and of attention.

On the issue of *what* information to gather, Naomi cautioned that in any system in which a potential for extensive data gathering exists, we must differentiate between what the institution and other audiences *need* to know, what we can actually demand and/or request people to tell us or allow us to observe and what we would *want* to know in an ideal world as evaluators. Recognizing this, however, Naomi went on to note what she considers to be some information priorities, for instance, students' previous educational experiences and their current job situations and whether or not these relate to their motivation to study. She went on to say:

> [Y]ou need to know something about the other demands on their lives. . . . The factors that turn out to affect people's progress as adults [have] much less to do with normal educational inputs than everybody has assumed [from traditional school age data]. . . . They're much more to do with all the rest of the business of adults' lives and the other pressures on them and their motivation, although there is, of course, some correlation with previous academic ability and intellectual achievement.

This was borne out by a large study at the OU in which a group of 18 to 21 year olds were followed over a four to five year period and results compared with findings on older students. Naomi noted that this research has also supported the fact that adults studying part-time often find the pressures of study quite difficult and disputes the cynical view that adults are simply being evasive or less than truthful when they cite lack of time as a principal barrier to furthering their education. She expressed the belief that for adults time genuinely is a factor, noting: "they're not prepared to sacrifice their families, jobs, lives, and the rest of it."

In the BOU's under 21 research, even among the younger students, those who survived were the ones that had the ability to hang loose. They ". . . didn't get up-tight, they picked their work up, they put it down, they didn't ruin their families, they didn't ruin their lives, and they survived." The more up-tight, obsessional ones who were unable to make these compromises were the ones who dropped out.

Naomi commented that initially the OU was very worried about people's ability to get to study centers but eventually realized that those who can't get there just don't bother to try and that they are generally fairly philosophical about it. "You know, they're studying [with us] because they're already [at a] disadvantage and it's not going to worry them."

One of the very important points that Naomi made concerned the timeliness of the data gathering. She noted that certain kinds of attitudinal information must be gathered at the outset of a student's experience and can never be gathered accurately later on because even people's recollections of their attitudes, once they've started doing something, change. Retrospective attitude information has a low probability of being faithful to reality.

With regard to the manner in which the information is collected, particularly when one is dealing on a really large scale and genuinely examining *distance* learning, "you need a system which is robust enough for people to respond without advisors and counselors mediating." Though Naomi concedes that counselors' and advisors' perceptions of the system can be of use, she protests that using these individuals as intermediaries without also approaching the students directly can provide inaccurate, incomplete and misleading information.

Naomi spoke to another point of extreme importance to both administrators and researchers in distance learning settings. Her words make the point convincingly:

> Adults are coming in and out of education and we want them to come in and out of it throughout their lives . . . [One] . . . concern is the concern of other institutions that people like UMA and the Open University are taking their students. Now it is quite clear to us over these years that the net increase to the country, of students, is far, far greater than any individual loss—even if there is an individual loss. The incremental gain from having thousands and thousands of adults coming into education means that individual colleges up and down the country are gaining our students when they've finished with us. And they would never have had those students if they hadn't started through us because we have actually brought more people to the pool. . . .

This assertion receives strong support from a recent study conducted at the BOU of what it calls "sleeping students", those who have dropped out after a period of enrollment at the OU. The study showed that in overwhelming numbers, these students had used their credits to go and enter other universities and polytechnic institutes. This study contributed to Naomi's belief that she would like to see students followed all the way through, from the point at which they inquire or apply onward. She noted that the BOU has never felt "rich enough" to record on a permanent data base even the people who actually apply, much less those who merely inquire. However, many of the people who apply don't actually enroll. The reasons could be enlightening. Naomi stressed that if one could do it, it would be excellent to track people in terms of their total interest in and accumulation of educational experience.

> I think it makes one have a very different view of the usefulness of these sorts of nontraditional programs because for so many people they offer a function not of the permanent way of learning, but as a mechanism for either getting back in from the cold or for dealing with a particular time of their lives . . . and then they will go back and carry on in some other way. And if you just take a snapshot of the little bit they did with you instead of taking the longer view, then you'll never come out good enough on the . . . educational/political judgment stage. . . .

In particular, Naomi admonished those of us attempting to provide adequate information on distance learners to be much more rigorous than we have to date about trying to catch students as they leave and seeing what happens to them "so that they aren't counted as a negative . . . but so they can be counted as a positive." This might be accomplished with an exit interview the need for which is triggered by the data information system perhaps at a point when certain kinds of expected data, financial or otherwise, don't show up.

Though students can't be required to cooperate, an automatically triggered questionnaire might be sent to people noting that they appear to have withdrawn, or perhaps to have finished, and asking them if they might volunteer to tell us about it. Follow-up telephone or personal interviews could then be conducted with some of them if that seemed desirable. Without such a mechanism, students quietly slip away without our knowing even that they've gone, much less the reasons for it.

Regarding the mechanics of a sound system, Naomi stressed that it is essential to work from the beginning to integrate into the management information system the mechanism for gathering necessary research and evaluation data. From the outset it should form the framework that tells the institution how things are going and provides warning signals if things are going awry. It should be "built into the administrative processes so it is there, taken for granted, and doesn't form an additional cost. It is literally embedded." Naomi stated simply that she believes one "should get people to accept from the beginning what is necessary and important." The challenge lies in accomplishing this. Naomi did not provide a magic formula.

Once established, the data gathering system must be put to use at designated times for designated purposes. At the OU they monitor both individual courses and students as part of the total university population, particularly in terms of demographic and lifestyle characteristics. There is a basic record on each student that is an integral part of the administrative process. To this are added ad hoc surveys on particular issues.

The OU has now constructed its computer capacity so that the ad hoc surveydata can be merged with an already existing data file on each student which contains basic demographic background and academic history. The staff, therefore, can analyze the data from any new survey in relation to students' academic history "without reasking them their academic history each time. . . . You have to have a large enough core storage to be able to add [new] variable length information to it." In addition to relieving students of the burden of repeated requests for the same information, it also gives the evaluation staff better control of the nonresponse problem because they know from existing data records the characteristics of the people who haven't responded.

> [We] try not to send any student more than two different questionnaires within a year. But . . . we have found over the years that people are absolutely committed and interested and the graduate questionnaire, for example, is about 26 pages. If you do it well enough and carefully enough and make it clear that you care and they see some results, it demonstrates to them the fact that the information they give you is . . . used. That feeds back into motivation. And it is terribly important as a means of demonstrating what the silent majority wants.

Relating Information Gathering to Evaluation

In summary, then, the purpose of these excerpts is to provide a first hand authoritative report of some issues and findings but, more critically, to stress the importance of integrating a well developed information system into the mainstream of the distance learning enterprise. Again, this is only one aspect of evaluation and a support for other evaluation activities. Most of this basic information does not automatically tell us *why* the system or its components are misfiring but gives us indicators that tell us when and perhaps where to look for the "why".

As I noted earlier, gathering data through precoded and structured means may offend those who would argue for the more social anthropological evaluation perspectives. Such perspectives are, in fact, exactly what are often called for as approaches to searching out causes and possible solutions. We need to observe process, examine products, ask questions in both structured and nonstructured modes and critically analyze what we see and hear.

Another point to remember is that in the absence of such subsequent study most of the data gathered through a well oiled, ongoing information retrieval mechanism has its primary importance for institutional planners and administrators and not for instructors, tutors or course developers. Though it is important for course developers, for example, to take into account the characteristics of the students, the information is at a fairly gross level. Making clear what information is being gathered for what purposes is essential if the various players in the system are not to become impatient with evaluation activities.

This particular level of data gathering should serve the needs of *internal administrators* for *learner* focused information and of *external policymakers* for *program* focused information. On the system level, both of these groups need to know if the institution is fulfilling its social and political mission. (This does not guarantee that they will know how to *use* the information with which they're provided. The evaluator as educator is important in this context.)

A Brief Look At External Evaluation

There are other ways, of course, of examining the accomplishment of institutional mission, one of which is the potentially useful but often limited external summative evaluation. If at all possible, an external evaluation should be planned well in advance of its occurring and, if there is any way to involve the agent of this activity at an objective, arm's length stance throughout the development of the institution, it should be attempted.

In 1974, writing for the University of Mid-America, Lent commented that "only through a long-term continuous involvement can the [external] evaluator provide UMA and [the funding agency] with the kind of sensitive, accurate and comprehensive feedback needed" (pp. 30–31). There is no point in the evaluator's arriving on the scene after the program is over or when there is no hope of influencing the collection of essential base-line data. Even when preparatory formative work has been done prior to the external evaluator's arrival, it may be considered inadequate by the external evaluator (rightly or wrongly) or simply ignored.

Despite these cautions, issued nearly a decade earlier, a 1979–80 external evaluation of the extent to which the University of Mid-America had increased access to postsecondary education in its region essentially ignored both the previous evaluation done within the system and the definition of access that had evolved as appropriate to nontraditional systems serving adult students. Furthermore, the external evaluators who were retained had no previous experience or contact with the program.

The study had a blatantly summative cast, coming toward the end of a terminal funding period, but promised constructive formative data. It was imposed by the funding agency under an arrangement by which the distance learning system itself contracted and paid for the study out of its research and evaluation budget. The latter condition did not in any way increase the acceptance of the evaluation by top level administrators.

Though the study produced some moderately interesting findings (such as evidence of student satisfaction and consortium administrators' dissatisfaction) its relevance to the rapidly changing institution was limited both by the lack of previous involvement by the external evaluators and by the technical limitations of the data gathering and reporting procedures. Most copies of the study sit in a box in the corner of my office used neither by planners nor policymakers to any degree consonant with the cost of the study. Nevertheless, reference to some of the findings and conditions of the study serve as an example of the types of data for decision making with which an institutional research and evaluation function must be concerned.

Sample Findings and Issues

The summative findings with regard to consortium building reinforced some of the hunches generated earlier in fragmented fashion through a formative evaluation function that had concentrated primarily on course level concerns. In this posture, the evaluation office had never devoted the time or resources to system-wide evaluation that would have helped it raise institutional consciousness and overcome roadblocks to implementing change.

The study confirmed the impracticality of a distance learning consortium in which the central agency must be concerned with national priorities while the consortium members are focused on local and regional needs. It also highlighted the very counterproductive nature of consortial relationships in which clearly defined and agreed upon roles, responsibilities, lines of authority and quality control mechanisms are lacking. Variant perceptions of who's in charge, of mission and of priorities for resource expenditures, development and system growth are precisely the kinds of issues with which evaluation must deal on a system level. However, recommendations focused on improving consortial relationships when the institution is evolving out of its consortial framework are not particularly helpful. Data that are appropriately supportive of summative judgments about what *has been* should not be confused with those that contribute to timely formative recommendations, if administrators are to find use for the information.

The telephone survey of 400 past enrollees in the UMA consortium schools yielded some implications for UMA's future but these were teased out by UMA's research and evaluation staff not by the external evaluators who conducted the study. For those who are interested in student characteristics and the types of data that can feed into program planning, marketing and promotion concerns, some information wrenched from the study's data is noted below.

—High probability potential students for a postsecondary distance learning system may be found among 1) those with some college or less; 2) those in small town/rural areas of under 10,000 people; 3) those between the ages of 40 and 50, among whom the opportunity for independent study is particularly important and for whom the UMA experience was particularly influential on the decision to continue their education.

—Student services such as the provision of a place to study, discussions with faculty members and a telephone hotline to course instructors were perceived as of little consequence to course completion. A higher percentage of those with less than a college education and of those from small towns regarded the telephone hotline as at least somewhat important but the absolute numbers were still less than half the enrollees in each category.

—Despite not seeing the services as particularly important, more students from the potential target groups were aware of and used them. Various services, therefore, may be a selling point, particularly to the rural population (e.g., the telephone hotline). The use of television and/or radio as instructional components was also important in attracting the rural population to enroll.

—Individual course completion is crucial to program continuation. A considerably higher percentage of course completers than noncompleters went on to other college level coursework. Therefore, attending to the factors that influence course completion is essential to keeping students in the system. (This particular study revealed an 83% completion rate in UMA courses; other studies have revealed between 65% and 80% completion rates.)

—Print components of the course were generally considered important to goal achievement by more members of the target student population than by others though there was no difference between completers and noncompleters.

—Those with less than a college degree showed particularly high participation rates and continuing interest in social science and business courses.

—There was a relationship in this study between course content area and attrition, with business courses particularly susceptible to drop out. (This would be a red flag in an integrated evaluation system.)

—A smaller percentage of those with less than a college degree were satisfied with the level of goal achievement they attained through their UMA courses than were college graduates. This was particularly true for the goal of "discovering or furthering career interest." (Another red flag)

—To interest various populations of potential students in a postsecondary distance learning system, this study (as have others) supported the need for variations in both promotional message and channels of delivery. For example, those with less than a college degree were best reached through media ads and articles rather than through course brochures.

On the basis of this study, the features that need to be emphasized in both planning and promotional appeals are availability of desirable course areas, convenience, cost savings, flexibility, and institutional credibility. Also, emphasis should be placed on the opportunity to satisfy the goal of career change or advancement through continuing one's formal education. For the older student (i.e., over 40) availability of specific job and goal related courses, independent study and institutional credibility appear to be the most crucial factors. For the younger student, course content and cost predominate.

—Finally, time appears to be a very real inhibiting factor for adults. A later interview study with students revealed that the increased convenience of distance independent study may not in itself remove this barrier. Adults want to eliminate much of what they regard as the Mickey Mouse curriculum requirements suitable to the formation of an 18 year old into a "well-rounded person" but which they feel are inappropriate at their age and given their limited time and specific goal orientation.

The experience of this external evaluation was, on the whole, less than positive, involving as it did administrators opposed to it from the outset; second guessing as to the funder's intent in imposing the study; the awarding of the contract primarily to suit the funding agency's implied preferences rather than on the basis of technical merit; an external evaluation agency that neither comprehended fully the nature of the system being evaluated nor attended sufficiently to previous evaluation findings; and the inordinate drain on the internal evaluation staff attempting to facilitate a naively conceived and logistically complicated study. Add to these problems the fact that the results have seen very little use and we're face to face again with the crux of the issue and with the underlying focus of this discussion.

Closing Comments

This paper has made a broad sweep of evaluation issues in distance learning systems. Rather than restricting its focus to methods or to findings or to any isolated corner of the vast overcrowded room of evaluation, I have crawled around among the table legs, blown dust from one lampshade to another and then searched for a place to rest. Having tested the springs in the couch and found them wanting, I think it may be time to throw some sheets over the disarray, close the door and think seriously about what to toss out, what to rearrange and what to move to some other rooms in the house. A little less clutter, some remodeling and perhaps by the time the next system needs evaluating, it will all seem more inviting.

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Article 39

"Assessing Long Distance Learning by Telecommunications: Policies, Procedures and Standards for Accrediting and State Authorizing Agencies"[1]

by
Richard M. Millard and Gordon K. Davies

After several decades of false starts and meager evidences of success, providers of postsecondary education are turning in rapidly increasing numbers toward the utilization of various forms of electronic technology to deliver instructional services. These providers include not only established colleges and universities, but also a wide variety of so-called non-traditional entities ranging from alternative institutions including television and radio stations to government and private industry. What only a few years ago was viewed as an as-yet unfulfilled dream for the use of telecommunications as the way to free potential learners from the confines of the campus and classroom has begun to evolve into a widespread conviction that the massive use of these technologies is about to occur. The initiation in the fall of 1982 of the nationwide Adult Learning Program Service of the Public Broadcasting Service, with tens of thousands of students enrolled through hundreds of colleges and universities, the continuing growth of the television-based American University Consortium and the imminent launching of the American Open University (offspring of the University of Mid-America) all bear witness to a coming of age of the use of telecommunications to deliver postsecondary education to hitherto unserved or underserved clientele.

Parallelling this sudden growth of institutional systems for utilizing telecommunications has been a sudden breakthrough in the development of high quality telecommunications-based instructional materials. It has long been recognized that a major, if not predominant, restraint upon the growth of telecommunications-based postsecondary instruction has been the relative paucity

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[1] The full proposal, of which this article is only the first part, was funded by FIPSE in 1982. The project is currently underway.

of high-quality instructional materials. Whereas a student is essentially captive in a classroom setting, regardless of the excitement or lack thereof generated by the instructor, a poorly designed or produced telecourse is likely to be switched off rather rapidly. Quality telecommunications-based instructional materials are very costly to produce, even if over time those high costs are amortized to make them competitive with traditional modes of instruction. Resources necessary to produce a high-quality telecourse, which may run well into seven figures, have been scarce, constraining this development.

The magnificent $150-million grant of Ambassador Annenberg has radically altered this situation. Disbursing $10-million a year for the next fifteen years, the Annenberg Corporation for Public Broadcasting Project has created a stable funding mechanism for the creation of quality telecommunications-based instructional programming. The effect of this development is already apparent with the first round of grants supporting several costly projects that otherwise would be unlikely of production.

Finally, there is the development and maturing of the technologies themselves, coupled with the dual effects of the rapidly rising cost of traditional instruction and the concomitant increasing cost-effectiveness of technological delivery systems. Whereas once open-broadcast television was the only way to distribute electronic courseware, there is now emerging a plethora of technologies available for this purpose. These include the rapidly expanding cable networks, the introduction of the video disc and particularly its harnessing to the microcomputer, the utilization of microwave-based multipoint distribution systems (MDS), direct broadcast satellite and of course the creation of a nationwide (and indeed global) satellite relay system that can enable an originating institution or organization to feed its programming to virtually any public television station or cable system throughout the nation at truly minimal cost.

The expansion of cable presents a particularly interesting target of opportunity for those involved in instructional telecommunications. Many cable systems are required by their municipal franchises to reserve several channels for instructional use, often with one or more reserved exclusively for postsecondary purposes. This sudden multiplication of dissemination outlets has opened an entirely new market for telecommunications-based course materials, a market that appears likely to attract profit-oriented entrepreneurs as well as colleges and universities and their traditional allies. "Xerox U." is no longer a threat of the distant future posed to educators by conference speakers who wish to awaken their audiences to something that may happen years from now; it is upon us, awaiting only the marketing strategies that will allow the private sector effectively to penetrate the potential clientele.

The action of the Federal Communications Commission on March 4th, 1982, giving final approval to the development of a system of perhaps three to four *thousand* additional television stations throughout the nation, will also have profound effects upon the availability of spectrum space, and therefore the opportunity for prospective providers of all sorts to deliver postsecondary programming into the homes and workplaces of the vast majority of Americans. The first low-power television stations are expected to be on the air before the end of 1982, with hundreds more coming on line in 1983. The capacity to network these stations (each of which will serve a three to fifteen mile radius) through satellite interconnections raises the immediate possibility of regional or even nationwide postsecondary delivery systems that might complement or compete with comparable services provided through the other technological means already described above. The regulation of these federally-licensed broadcast facilities will raise questions that have only been touched upon in dealing with current operational systems.

The decision to proceed with this project was in large measure dictated by the increasing awareness by members of the state authorization and accreditation community of a problem comparable to that faced in the late sixties with the sudden explosion of off-campus instruction. At that time, those charged with regulating postsecondary education and assuring its quality were caught totally unprepared for the tremendous increase in off-campus programming that swept the country. A survey of the heads of state higher education coordinating agencies reveals the following concerns:

- —In *South Carolina,* there is considerable concern over potential conflict between the need to assert effective control over telecommunications-based instructional programming originating outside of the state and issues of restraint of trade.
- —In *North Carolina,* two out-of-state public institutions decided to withdraw a telecommunications-based project when informed that the state intended to apply full standards for conventional out-of-state programs. While the state believes its current standards are sufficient for current technologies, there is concern that they are inadequate to deal with new approaches such as Direct Broadcast Satellite.
- —*Ohio* has indicated great concern over the problem of monitoring telecommunications-based instruction, noting that problems have been avoided so far only because of the cooperative attitude of the institutions.
- —In *Pennsylvania,* an interstate telecommunications-based instructional system was at first opposed by the higher education authorizing agency, but the objection was withdrawn upon advice of the Attorney General that the state statute was ambiguous.
- —*Idaho,* with limited penetration at the current time, perceives a potential problem arising out of programming emanating outside of the state and has begun to study the degree to which its existing regulatory scheme is sufficient for the purpose.
- —*Indiana* reports that it faced a situation similar to that of Pennsylvania, with the Attorney General recommending that the state not act to either afford or deny approval on the basis of statutory ambiguities.

Generally, most states are approaching the issue timidly, uneasy over their ability to assert regulatory authority but not yet faced with a situation that would force the issue. (In the two cases where the state was advised by counsel to avoid a confrontation, the out-of-state provider was a public institution of good reputation.) Many state officials see the existing American University Consortium, SECA, PBS PTV-3 and American Open University/UMA systems as only the onset of an incipient flood. Indeed, several respondents used the same language to describe their most serious fear: the creation of a "Ted Turner" University of the Air, operating out of a state with minimal (or no) approval requirements and backed by enormous capital and operating resources. A study conducted by the Education Commission of the States in 1981 identified nineteen states in which issues relating to the development and control of educational telecommunications and off-campus learning were rated as areas receiving increasing attention from state leaders.

While the issue of long-distance learning has not yet created major problems for the accrediting community, accrediting agencies are continuing to wrestle with the phenomenon of rapidly expanding off-campus educational activities carried on by institutions across state and regional boundaries. Although progress has been made in developing standards, policies and procedures for assessing such activities and more effective cooperative interregional action, the problems remain inadequately resolved. The analysis derived from this project may help to determine whether policies and procedures now in use or proposed are capable of being modified for use in determining the locus of institutional responsibility for and evaluation of the quality of long-distance learning.

The Role of Authorization and Accreditation

The removal or mitigation of technological, production and market constraints on the development and exploitation of telecommunications-based instruction might be thought to open the door to its widespread adoption, particularly given its increasing cost-effectiveness and the competition for scarce dollars. However, one very important set of constraints properly remains the responsibility of the states to regulate the provision of educational services within their boundaries (the authorization or state institutional licensure function) and the reliance of both the states and the education community itself on self-regulation quality control (accreditation). The primary purpose of both state authorization and voluntary accreditation is to provide the public with basic assurances that proffered educational services meet minimum standards and that the award of an academic, professional or technical degree can be relied upon as representing a certain minimum level of knowledge. In addition, accrediting associations are concerned with progressive quality enhancement of institutions and programs. These historic functions have become increasingly important as the number and variety of providers of postsecondary services have increased.

An ancillary effect of authorization and accreditation has been to protect existing providers from the depredations of "unscrupulous" competitors. This protectionism is always couched in terms of protecting the consuming public, and often the protection is applied only for that purpose. However, as the postsecondary market becomes more competitive, the opportunity to use the state authorization and voluntary accreditation process to stifle competition and innovation arises as a more serious problem.

The state authorization and accreditation communities have recognized the growth of non-traditional means of delivering postsecondary education, and in recent years a number of efforts have been undertaken to develop common guidelines for the assessment of these activities. Perhaps best known is the major effort undertaken by the Council on Postsecondary Accreditation (COPA) under the direction of Dr. Grover J. Andrews of the Southern Association of Colleges and Schools, entitled "Assessing Nontraditional Education". Out of this came a series of recommendations for the accrediting community and for postsecondary institutions as to a future course of action for dealing with non-traditional programs. The key feature of the Policy Statement arising out of the report is the recommendation that "the accrediting model, now primarily a 'process model,' should be restructured to incude the assessment of educational outcomes or performance." The concept of the assessment of *outcomes* as opposed to processes was seen as opening the door to innovation that sought to achieve the desired learning consequences independent of traditional modes of instruction. Coupled with this key recommendation was the admonition that "where institutional educational operations are interregional, cooperation with other appropriate accrediting agencies should be mandatory." Thus, COPA recognized an emergent problem of instructional programs, particularly the non-traditional, extending across jurisdictional lines. However, the report dealt primarily with non-traditional forms of instruction and learning that involved a *presence* of the providing institution within a given jurisdiction, and perforce a limitation upon the number of such jurisdictions within which a provider could simultaneously operate. *Ad hoc* cooperation, therefore, seemed reasonable and appropriate to resolve the coordination issue.

The states in the exercise of their authorizing function have taken a somewhat different approach. Most states now require a provider of postsecondary education services with *presence* within its jurisdiction to be licensed or authorized to operate. Some states set the threshhold for presence at a very low level, as in the case of Minnesota which requires only that there be offered an "educational activity" within the state, while others require (or their statutes have been interpreted to require) a more substantial physical presence. Some states premise authorization on the approval of an institution or other provider by an accrediting agency, and a few have gone the further step of requiring that approval come from the accrediting body with jurisdiction over institutions in the state. Full faith and credit for authorization granted by other states is very much the exception.

The effect of the existing combined accreditation and authorization system is a balkanization of postsecondary education. Never having had a "national university", the American system of approval is not equipped to deal with the provider whose services can easily blanket the nation. Yet, just such services are being designed and in some cases initiated at this very time. The effect of the absence of a nation-wide consensual approach means that such systems of delivery must deal with the requirements of each state and each accrediting region. The mere investigation of licensure requirements and how they might apply to a given telecommunications system is both costly and time-consuming. The process of filing for authorization (assuming one could ascertain whether such a delivery system would trigger the applicable statute) is at present exponentially more difficult.

This lack of coordination and cooperation has resulted in the creation of a chilling effect upon those who would propose to develop telecommunications-based postsecondary instructional systems. The uncertainty as to treatment among the states and the accrediting regions, the great cost involved in dealing with fifty-plus licensure statutes of greatly varying effect and structure, and the inability to predict with any degree of certainty how a telecommunications-based system might be perceived within a given jurisdiction, have caused many potential providers to tread very carefully in the development of their systems.

Indeed, some providers have taken the position that imposition of burdensome state and accrediting agency requirements for approval to operate in a given jurisdiction violates the Interstate Commerce Clause of the U.S. Constitution and deprives prospective learners of equal protection. Advocates of strong state responsibility counter that the Constitution clearly reserves the control of education to the states, a position recently reaffirmed by the National Governors' Association at its 1982 Winter Meeting in Washington. Absent the development of a voluntary solution to this problem, a controversy of Constitutional proportions is likely to arise. Until such a matter could be resolved by the courts—and probably the U.S. Supreme Court—the present chill might well transform itself into a deep freeze.

Yet there can be no question that state oversight and voluntary accreditation are not only valuable but necessary ingredients of our decentralized system of postsecondary education. The question which increasingly emerges, and which this project seeks to begin to answer, revolves around the development of a unified or complementary approach (if not uniform laws) to the authorization and accreditation of distance learning via telecommunications, consistent with the dual needs of protecting the public while at the same time encouraging innovation and efficiency in the delivery of postsecondary education, particularly to those clientele now unserved or underserved.

Institutional Role

In addition to the consumer protection authorizing activities of state agencies and the higher educational communal self-regulatory quality assessment and enhancement of accrediting associations, fundamental to any quality development in higher education are the integrity and self-regulatory activities of institutions themselves. It is upon extension of this institutional and program responsibility to the larger higher education community that the validity of the accreditation process itself rests. The developments in telecommunications-based long distance learning will have a direct impact on existing institutions and programs. Some have moved into telecommunications instruction already (e.g. University of Maryland, University of Nebraska and the five cooperating institutions in the University of Mid-America, and Coastline Community College in California). Others will do so. This will include offering degrees and certificates in addition to individual courses. As noted, other types of institutions including business and industry will in all likelihood be entering the field. Thus, one important aspect of the problem and of this project clearly includes increasing institutional awareness of the issues and dimensions of the new approaches and, through and with the existing, new, and emerging institutions, enhancing their own self-regulatory activities. While authorization and accreditation can inhibit or prevent shoddy, unscrupulous or submarginal operations, only the institutions or organizations involved in educational delivery can assure the integrity of their own operations. Thus, the concerns of state agencies, accrediting associations and institutions converge, and development of such institutional awareness and self-regulatory potential is an integral part of addressing the problem and creating the climate and support for effective authorization and accreditation in this potentially expanding area.

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Section VII

Broadcasting and Distribution of Telecourses

Introduction

This section deals with how telecourses go from producer to distributor, to college, and ultimately to student. The topic is a complex one involving matters of public telecommunications policies, on-going technological changes, technical considerations of equipment and broadcast frequencies, and, ultimately, economics. Many of the articles in this section were written by leaders of the instructional television movement.

Only recently, if a college or university wanted to offer telecourses, the options were fairly simple: Use either a local Public Broadcasting Service (PBS) station, or buy or arrange free time on local commercial stations. A few institutions were licensed to operate a public radio or public television station, making the problems of broadcasting even easier. For educational institutions offering telecourses today, there are many decisions to be made regarding the acquisition and broadcasting of telecourses and participation in various organizations related to the process. It is no easy task just to get information on all of the options. And evaluating the advantages and disadvantages of each option requires a great deal of time and study on the part of college personnel.

Without the Public Broadcasting Service, broadcast telecourses for "distant learners" probably would not exist in this country. And yet the relationship between education and public television as well as between local schools and stations, has not always been smooth. The first four selections in this section deal with various aspects of the relationships between PBS, educational broadcasting, and educational institutions. In an address in the spring of 1982, the president of PBS, Lawrence Grossman, made a significant speech calling for a new partnership between public television and higher education (Article 40). Grossman said that the greatest advantage in the use of public television is that it furnishes higher education with a way to reach a "new audience" of adults. The speech also showed that public television's leaders are taking seriously the mandate to offer more educational programming.

In February 1981, the creation of an adult learning network within the PBS organization was announced. In Article 41, the director of that system, Dee Brock, describes the accomplishments of PTV-3 in the first year and outlines its goals for the future. Recognizing the start-up problems and controversies should not overshadow the importance of the commitment by PBS and the achievements by PTV-3 in terms of colleges using the system, students enrolled, and procedural problems reduced.

The Public Broadcasting Service is made up of local PBS stations which must serve local programming needs, of which educational television is only one category. Stations have joined together in regional networks to help deal with mutual television problems, and many of these regional organizations, such as the Southern Educational Communications Association, have become important in supporting the offering of telecourses. Article 42 outlines the postsecondary education service of the Central Educational Network (CEN), based in Chicago and serving the PBS stations in the midwestern states. The CEN Postsecondary Education Council attempts to encourage and support the use of telecourses in the region, and its membership includes appropriate state education officials and television personnel.

One of the biggest hurdles to overcome in offering telecourses is the establishment of a good working relationship between television station personnel and college and university administrators. The details regarding broadcast schedules, publicity, and financial relationships are numerous, and confusion often exists over assignments and responsibilities in each institution. In 1979, Richardson conducted a survey of three community colleges and three consortia to explore the "success factors" in station-college collaborations. Her findings reported in Article 43, provide much detailed information useful to people in both kinds of institutions.

Many educators probably take for granted their access to broadcasting provided by the PBS system. In a very important paper, Norwood reminds us that such broadcasting is possible today only because the federal government in 1952 established a policy of setting aside certain frequencies for public educational use (Article 44). Equally important federal policies regarding telecommunications are being considered in the 1980s; for example policies that affect cable television licensing requirements, satellite use, Instructional Television Fixed Service (ITFS) frequencies, and radio. As telecommunications technologies continue to expand the need for educators to participate in the shaping of federal telecommunications policy will also increase.

Educational institutions may individually acquire telecourses and offer them, or they may participate in one or more organizations which provide special courses for them. The Appalachian Community Service Network (ACSN) is one such organization. Using satellite technology, ACSN (described in Article 45) provides a telecourse curriculum with a focus in graduate and continuing education. Another organization which provides specially produced and selected telecourses is the National University Consortium (NUC). Alan Hershfield, the director of NUC, describes the first year of that organization in Article 46. The focus of NUC has been on high academic standards, and the curriculum relies largely on programs and materials from the British Open University.

Increasingly, another option for reaching students by educational institutions is cable television, as cable franchises are being granted in many communities throughout the country. In many cases, access to a cable channel can extend broadcasting options for less than it costs the college or university to use public or commercial stations. Article 47 is basically a "how-to" introduction for colleges approaching a cable company and is based on the successful experiences of Austin Community College, Austin, Texas.

Many higher education institutions are joining consortia as a way to decrease cost and gain other advantages in offering telecourses. A brief survey of consortia is provided in the selection by Zigerell (Article 48). A description of the state-wide television consortium in Florida appeared in Article 18 in Section I.

Another important aspect of the problem of telecourse distribution and broadcast is the costs involved. Telecourses are expensive to produce, acquire, broadcast, and offer for credit. The questions of who should pay and how much should be paid have been central to the problems between educational institutions and television stations. This is an area needing much more attention and analysis in the literature on telecourses. In this section, Munshi (Article 49) describes the costs and incomes related to telecourses for all involved institutions.

The last article in this section discusses an important issue for educational institutions considering the future of telecourses. Rice argues that while broadcast telecourses have been important and successful, non-broadcast systems will, in the long run, provide more advantages for students and educators. And the new media—videocassettes, videodisc, and cable—may be superior to broadcast television when used for instruction.

Article 40

"Coming Together—Public Television and Higher Education"

by
Lawrence K. Grossman

I am grateful to you for inviting me to be your keynote speaker for this National Telecourse Conference. It is a tribute really to Bill Reed and Dee Brock who, in the course of one experimental year, have placed PBS squarely in the national leadership of the adult learning movement. We look upon PBS's adult learning effort as one of our proudest accomplishments this year, and certainly as one of our highest priorities and greatest opportunities for the future. We have become zealots in the great cause of adult learning through television and we intend to explore every avenue and use every possible resource to further that cause.

I would like to talk to you this morning about the partnership between higher education and public television. We share a great deal in common—a common mission and purpose, a common danger to our survival, and a common future and promise. I would also like to share with you my perspective about the so-called telecommunications revolution, offering some words of caution and skepticism about its promise vs. its performance. And finally I would like to suggest some directions for a closer and inevitable alliance, indeed a fusing of public television and higher education.

Those of us in public television and those of you in higher education share a common mission—to know ourselves and all that is around us. To enlighten, to inform and to educate. We share a conviction about the direction for our future—to expand, improve and enhance adult learning. And we share a present day dire financial threat to our ability to satisfy our civilizing purpose and mission. Together we can overcome those temporary financial cutbacks—to public education and to public broadcasting.

The fact is that *your* greatest opportunities lie with *our* growing audiences. There is a revolution going on in post-secondary education today. One part of that change is taking place on campuses. The graying of higher education may be an overstatement but the student body is certainly getting older. One-third of all students enrolled in credit bearing courses in colleges and universities are now over 25 years old. The number of students 35 years and older has increased 37% in the last five years.

And it is this older student who has saved higher education from the declining enrollments and closing doors that the educational statisticians have been warning about for years. As the last of the baby boom generation was graduated from high school, there would certainly have been a

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Lawrence K. Grossman is President, Public Broadcasting Service.

From a speech by Lawrence K. Grossman, "Coming Together—Public Television and Higher Education," read at the National Telecourse Conference 1982: "Managing Technology for Adult Learners," April 30, 1982, at Dallas, Texas. Reprinted by permission of Public Broadcasting Service.

drastic drop in enrollments without the new adult audience. However, rather than the declining numbers predicted by many, the enrollments last fall showed a modest increase. And the adult learners who account for these increased numbers will continue to swell college enrollments if post-secondary institutions can develop programs and implement delivery systems to attract and serve adult students. The U.S. Census Bureau predicts that if the current trends continue there will be as many students over 25 as there are under 25 by the end of this decade. By the year 2000 over one-half of the population of the nation will be over 50 years old.

Still another trend is the increasing number of part-time students on campus. While full-time enrollment is declining across the board, part-time enrollment is going up. Part-timers increased by over 3% last year. A full 72% of all post-secondary students over 25 years of age are now part-time students.

The second part of that revolution is going on off campus. In *Americans in Transition*, a recent College Board publication, the authors identified over 60 million adults, age 25 and over, as learners in 1980. More than 30 million of those learners were involved in career training and development studies but only 30% of them were learning through colleges and universities. Thus, even though adults are flocking to colleges and universities to attain degrees and to take courses (most of which have some job or career goal at the end), a far greater number of them are learning elsewhere.

Peter Drucker, in a much quoted speech delivered last year, predicted that continuing education, which is adult learning that is aimed at professional development or career training, would soon be a third tier in higher education. Actually, Drucker was behind the times. In 1980 continuing education had ascended to the first tier of higher education. In 1980 about $65 billion was spend on all higher education in the United States, while more than half that amount, between $35 and $40 billion, was spent on continuing education, according to the American Society for Training and Development.

How and by whom was this money spent? The American Association of Higher Education reports some 40,000 business seminars in 1980. The American Management Association alone enrolled 100,000 students in 32,000 seminars in 1980. The American Telephone and Telegraph Company spent $700 million on employee training; and the federal government spent $238 million on personnel training, not counting the military services. These are just some of the events that have led the National Center for Educational Statistics to predict that $2.2 billion will be spent on management training alone in 1982.

Yet the fact remains that colleges and universities have not yet taken the major role in this learning revolution, for only 30% of all adult learning—credit and noncredit—is associated with post-secondary institutions. The other learning activities are associated with on-the-job training, professional and trade associations, proprietary groups and study undertaken by students on their own. One possible consequence, according to a forecast by the Bureau of Labor Statistics, is that by the year 1990 the number of college and university faculty will be down by 10% even while the number of adult students will be up by 18%.

There is a great opportunity here—for you and for us. The revolution in television holds great promise for helping colleges and universities to find solutions to some of the problems of serving adult learners, full and part time, on and off campus, in ways that meet their needs and fit their schedules. As I've said, your new students are our new audiences. The present public television audience mirrors the U.S. population in terms of education, socioeconomic status, occupation and race. And it is a rapidly, dramatically growing audience. Today, more than 90 million people are watching public television each and every week—over half the nation's television homes. While the commercial network shares have declined by 15% in the past five years, public television's audience has increased by 70%; 85% during prime time alone. So much for the contention that public television is viewed only by a small elite segment of the population. We are serving and want to serve the same people as you do.

Only 18 months ago PBS staff began to work to organize an alliance in higher education with the Coast Community Colleges, Dallas Community College, Miami-Dade Community Colleges and the Southern California Community College Consortium, among others, and with public television stations—to develop a partnership between higher education and public television for the delivery of adult learning services. The plan calls for adult learning in its broadest sense: college credit courses, informal learning, professional and career training. The partnership is a natural and a thriving one, for public television has always been involved in education. It just took the national impetus to bring it to a new level of awareness and activity.

This past year, the first year of PBS's Adult Learning Service, 220 public television stations have worked in partnership with over 500 colleges and universities to deliver television courses that will be taken by some 50,000 students for credit by June. That's some accomplishment for the first academic year! Even more remarkable is the fact that, according to a special study just completed by the Nielsen Company and PBS Research, 650,000 people each week viewed the telecourses distributed by PBS. Clearly, we have a good start in achieving our mutual goals of serving new students and new audiences through public television.

Indeed, we have been so encouraged by the response that adult learning at PBS is being enhanced and continued on a self-supporting basis. Looking to the future, public television is exploring new ways to deliver educational services, including our proposed National Narrowcast Service, PBS/Cable and initiatives in computer assisted instruction. Which brings me to the impact of new technologies on our efforts. We've heard much of the promise and excitement of new telecommunications opportunities. I would suggest, however, that current enthusiasms are leading to immoderate and unrealistic expectations. We've seen it all before. Half a century ago radio was introduced as the "magic music box" that would bring Mozart to millions and spread unprecedented enlightenment from city to hamlet. After World War II television arrived with the promise of being "the saving radiance in the sky" that would deliver Shakespeare to Sheboygan and turn every living room into an opera house, theater, concert hall, museum, library, classroom and political soap box.

Today the dramatic transformation of television by satellite, cable, cassette and disc is bringing forth once again a barrage of blue sky forecasts about educational, cultural, and informational wonders to come. On Wall Street the new media are the big money favorites. In Washington, telecommunications policy makers assure us that we are about to enter an era of abundance in which hundreds of television channels will entertain, inform, educate and uplift us in ways never before dreamed possible, all in the safety and comfort of our own home.

My own expectations from the new television abundance are considerably more modest. My crystal tube is clouded over by the lessons learned from similar recent media transformations of radio, magazines, books and newspapers. Present day economic and structural changes in those industries suggest that technological abundance by itself, far from making things better, too often changes them for the worse.

I happen to believe that the main impact of the new media technologies on public television will be to make public television even more important in the future than it has been in the past. That is the good news. The bad news is that public television will be so important in the future because the new television technologies are more likely to dilute the quality and character of education, the arts and information than improve them. Public service television will still be needed as the countervailing civilizing force on our most pervasive and influential medium of communications.

My own forecast is that the proliferation of channels will spawn a gigantic supermarket of commercial programming that is slickly designed, carefully packaged, plentifully displayed, heavily merchandised, and overwhelmingly bland and easy-to-digest. The evidence so far demonstrates that the actual product of the new media expansion does not measure up to its exuberant promise.

Take radio. During the past 25 years radio stations, especially on the FM band, have multiplied dramatically in virtually every community. Yet commercial radio's programming diversity and quality have markedly declined not improved. Today, scores of radio stations, broadcasting a variety of program formats, can be heard in almost every home in the United States. But apart from public radio there is no radio drama, no radio educational programming, hardly any original performing arts on radio, hardly any major documentaries, few quality programs for minorities, fewer for the elderly, none for children. A technology of abundance, far from enriching and expanding radio's programming choice, has managed to shrink it drastically. Will the technological explosion have the opposite effect on television? I very much doubt it, unless you in education and we in public television do something about it.

That doubt is reinforced by a similar trend in publishing. Take magazines. In a business once dominated by *Life, Look* and the *Saturday Evening Post* (the print antecedents of ABC, CBS and NBC), the proliferation of special interest magazines was greeted as evidence of an educational and cultural publishing explosion. However, one look at the kinds of titles that fill today's magazine racks suggests the kinds of programs that will be filling the new multiple highways of television. They tend to be narrow tributaries off the mainstream: movies, gossip, sports, pop entertainment, news, money, sex and other leisure-time pursuits.

What of the hoped for profusion of political, artistic, educational, philosophical, cultural, literary and quality magazines for the general public? In today's high-powered marketing environment these are either dead, dying or desperately trying to stay alive by, of all things, converting to tax exempt not-for-profit corporations.

The same trend is, if anything, even more pronounced in book publishing whose paperback revolution began at least 50 years ago. The venerable privately owned publishing houses have largely faded away. As Thomas Whiteside demonstrated in his book, *The Blockbuster Complex*, publishers now focus almost entirely on the blockbuster best-seller at the expense of "less profitable but artistically more meritorious works." In commercial publishing fewer but bigger is the catchword. For books, as for radio and magazines, more has come to mean less. The university presses and educational publishing have become more necessary than ever to preserve our highest values.

A similar evolution is taking place in the newspaper business. Many of the biggest circulation dailies, once thought to be invulnerable, are now in deep financial trouble. The *Washington Star* and the *Philadelphia Bulletin* have already folded. The *New York Daily News* and *Chicago Tribune* are seriously ailing.

This same pattern of fragmentation and dilution which has recently characterized other media has already begun to make its mark on American commerical television. The rise of UHF channels and cable's distribution of distant signals have brought about more programming specialization, with individual stations concentrating on news, sports, movies and packaged entertainment series. But that very specialization, caused by the increase in number of channels, has also caused a severe decline in the actual diversity and quality of commercial television programming. In the future, when every community will have dozens or even hundreds of channels, television audiences will be so fragmented that commercial broadcasters will no longer be able to afford *any* major drama, quality children's programs, original performing arts, significant public affairs documentaries, or serious educational programming. Television will become like radio.

We see that same trend happening already even with the new cable program services. The cable services first sprouted with ambitious promises to provide culture, news, sports, and children's programs, women's programs, minority programs. But economic reality has set in early. As *Newsweek* recently reported, ". . . cable television's nascent cultural revolution is confronting an economic crisis that threatens to strangle it at birth." Despite the great promise of programming diversification, virtually the entire financial underpinning of cable, subscription TV and the video cassette business rests on movies, boxing matches and pornography. The new electronic highways, even more than the old, are bringing us prize fights before prize drama and centerfolds before serious music.

All of which brings me to my final point—the direction of our alliance. We must seize the opportunity to use technologies to expand the best that civilization has to offer. If public television and higher education do not do it together, nobody will. The synthesis of television, satellite, computer and cable does offer extraordinary opportunities for education. It brings unprecedented resources to every campus, reaching throughout the nation and throughout the world to make available the greatest teachers, reference material, data and unlimited information with the push of a button. It extends the opportunities heretofore restricted to the campus to students at home and at work. It offers two way communication—feedback to and from specific audiences. It permits new and dramatic techniques for bringing information and understanding. It offers new opportunities to serve a population equipped with a new kind of literacy and experience—television literacy and computer literacy. Video games, remember, are one of the fastest growing phenomena at home, on campus and in amusement arcades.

All this serves to outline the nature of our growing alliance. We in public television have the highways, the satellite links, the audiences, the capacity to reach out, the experience in production and use of the new forms. You in higher education set the standards, determine the content, provide the accreditation, offer the evaluation. Both of us share the mission, the dedication to higher values.

Since the beginning of civilization, the arts, culture and education have been kept alive by the patronage of the church, the crown or the state. We mark the quality of every society by its legacy of support for those civilizing institutions. Together, we must fight to keep that support in order to make our society worth living in. Today that legacy must be sustained by a partnership of the educational institutions and the arts institutions, connected to the people by public television. This is a powerful alliance that can exist to make available to all the very best our civilization has to offer. Such a goal is within our reach for the very first time. It is tempting to hope that this responsibility will be embraced automatically by the new technologies in the marketplace. But the evidence so far offers little encouragement. Whatever diversification the new technologies will finally bring is diversification for profit, an estimable but limiting goal which determines what is done only by what will sell.

I do believe that great new opportunities will emerge from the new technologies. But I have no illusions. Efforts to disseminate the arts, education and information to all will be even more of a struggle in the future than in the past. As these avenues of communication expand exponentially, we have the responsibility to see to it that the babel of commercial voices filling its hundreds of channels will not drown out the values we cherish most. Which is why the nation shall have to depend to an even greater extent on you and on us to play a vital civilizing role. That, in the end, is what your conference is really all about.

Thank you.

Article 41

"Promise and Partnership: Public Television and Higher Education"

by
Dee Brock

One part of the change going on in postsecondary education today is taking place on campuses. To say that campuses are going grey may be an overstatement, but surely the student body is getting older. A recent *Newsweek* article (December 21, 1981) reported that one-third of all students enrolled in credit bearing courses in colleges and universities are now over twenty-five years old. The number of students thirty-five and older has increased thirty-six and one-half percent in the last five years.

Actually, it is this older student that has saved higher education as a whole from the doom of declining enrollments and closing doors that the educational statisticians have been warning about for years. As the last of the baby boom generation graduated from high school, there would certainly have been a drastic drop in enrollments without the new adult audience. However, rather than the declining numbers predicted by many, the enrollments last fall were still increasing. And these adult learners can continue to increase college enrollments if adults can be attracted to colleges and universities in increasing numbers. The U.S. Census Bureau predicts that if the current trends continue, there will be as many students over twenty-five as there are those under twenty-five by the end of this decade. Certainly, there will continue to be more and more citizens in the aging category. In fact, as Dale Parnell, President of the American Association of Community and Junior Colleges, told a community-based education association last spring, by the year 2000, over one-half of the population of the nation will be over fifty years old.

But the adult population is a different population from that of the traditional student. If students are to be attracted from these ranks, colleges and universities will have to be aware of the differences, and they will have to structure their programs and services to fit these special interests and needs. For example, adult learners are demonstrably more pragmatic and more goal-oriented than the typical recent high school graduate. Far more motivated than teenage learners, adult learners are also likely to be more self-disciplined and more determined; they are also likely to be more impatient and more critical. By far the largest numbers of adult learners are career-centered. While eighteen year old students want to know what they can use to succeed in the future, older students want to know what they can use now.

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Adult learning styles are quite different, too. Though the definitive studies have not yet been done that delineate all of the ways their learning styles differ from those of their younger classmates, the research in left and right hemisphere dominancy and in field dependency and independency all seem to hold great promise for designing better strategies for teaching adults effectively. Some of the most intriguing research suggests that what has in the past been deemed a slowing down of mental agility on the part of adults is, up to a point, simply the accumulation of more options and the acquisition of additional abilities to see nuances and interrelationships. These new insights enable adults to see quickly many more options for making decisions. Thus, often what seems to be the result of slowing down mentally is more likely to be the result of seeing many more possibilities.

One of the most distinctive differences between what used to be the typical just-out-of-high-school college student and the new over twenty-five-year-old student is that the adult learner is much more likely to be part-time. While full-time enrollment is declining across the board, according to a recent *Chronicle of Education* story (May 4, 1981), part-time enrollment is going up. Part-timers increased by over three percent last year. A full seventy-two percent of all post-secondary students over twenty-five years of age are now part-time students.

But if a revolution is going on in education on-campus, an even bigger revolution is going on off-campus. For there is in the United States today a seemingly insatiable demand for professional education. In *Adults in Transition*, a recent College Board publication, the authors identified over sixty million adults twenty-five and over as learners in 1980. Over half of these learners were involved in career training and development studies. However, only thirty percent of them were learning through colleges and universities. Thus, even though adults are flocking to colleges and universities to attain degrees and to take courses (most of which have some job or career goal at the end), a far greater number of them are learning elsewhere.

Peter Drucker, in a much quoted speech delivered last year, predicted that continuing education—translate "adult learning that is aimed at professional development or career training"—would soon be a third tier in higher education. But a clear look at the realities of education reveal that Drucker was already behind the times. For continuing education had already passed third place by 1980. In that year, about sixty-five billion dollars was spent on all higher education in the United States, while between thirty-five and forty billion was spent on continuing education, according to the American Society for Training and Development. Thus, continuing education had already accounted for over half of all the higher education expenditures.

How and by whom was this money spent? The American Association of Higher Education reports 40,000 business seminars in 1980. The American Management Association alone enrolled 100,000 students in 3200 seminars. The American Telephone and Telegraph Company spent $700 million on employee training; and the federal government, not counting the military services, spent $238 million on personnel training. These are just some of the events that have led the National Center for Educational Statistics to predict that $2.2 billion will be spent on management training alone in 1982.

Yet the fact remains that colleges and universities have not yet taken the major role in this learning revolution, for only thirty percent of all adult learning—credit and non-credit—is associated with post-secondary institutions. The other learning activities are associated with on-the-job training, professional and trade associations, proprietary groups, and study undertaken by the students on their own. One possible consequence, according to a forecast by the Bureau of Labor Statistics, is that by the year 1990, the number of college and university faculty will be down by ten percent, and the number of adult students will be up by eighteen percent.

Why are not more students choosing colleges or universities to accomplish their learning goals? One reason may be that the typical university response to the demand by such professionals as practicing engineers to learn more about computer graphics is a lengthy study resulting in a new Ph.D. program, a program that begins with an introductory history of the development of computers. Another reason may be that when potential students, such as a bright young woman supporting herself and her two children on her own wants to earn a college degree so that she can move ahead professionally, the registration process requires her to stand in line in the gymnasium for two hours. She then may find that she has to come to campus for classes three hours a day, five days per week, in the middle of the day, whether or not there is public transportation that serves the campus adequately. Of course, few bosses would put up with such hours.

These responses would be funny if they were not likely and if they did not adversely affect the personal lives of our citizens and the institutional lives of colleges and universities. A few months ago an advertisement appeared in the personal column of the Michigan State University newspaper. This brief notice sums up the attitudes some colleges and universities have for these adult learners that are determined either to shape academe to their requirements or to take their business elsewhere. The ad read: "Electroplate your baby. Turn a noisy, troublesome infant into a desirable keepsake." Unfortunately, or fortunately, adult learners will not hold still for electroplating. We cannot stop their insatiable desire for learning. And we will have to satisfy their needs on their terms, or they will find another source of satisfaction.

If one revolution taking place in higher education is in the make-up of the student population, another is in the delivery of that education. Technology is especially well-equipped to help in the delivery of education to the new adult students. Certainly, in the best of all times, many different kinds of technology would be explored, tested and utilized fully to serve colleges and students in a variety of ways. But these are depressed times, and the acquisition of expensive new technological systems, no matter how desirable or how practical or how cost-efficient, may not really be possible in the present. But there is one technology that is ever-present in our society, one that is well within the reach financially of almost every person and every institution in the country, and one that holds great promise for helping colleges and universities find a happy solution to some of the problems of serving adult learners in ways that meet their needs and fit their schedules. I am speaking, of course, about television, and I am addressing particularly the new partnership between the Public Broadcasting Service (PBS) and higher education, a new national initiative begun just over a year ago.

Television is the most important and revolutionary communication medium in the history of the world. In fact, it is more than that to the United States; it is what we in this country do as a people. We eat, sleep, work, and watch television. Studies show that the average person in the United States watches television six and one-half hours per day—unless he or she has cable—then it is seven and one-half hours per day in front of the set.

From its inception, television seemed to offer a wonderful opportunity for higher education. It was hailed as an invention that would open a window on the world. It would put all learners into instant communication with the best teachers and most insightful thinkers, and it would also allow each person to experience the wonders of the world of nature and the world of imagination. Instead, for two decades it seemed that, as far as higher education was concerned, what we received was what Newton Minow characterized as the dull grey professor on the dull grey screen reading his dull grey notes. But after all, television is only forty years old, a relative newcomer in the world of higher education. In comparison, the telephone is over 100 years old, and "Ma Bell" still has to tell us to call our mothers. Actually, the same thing happened with television that is happening with other new technologies now. The visionaries leap to embrace the new technology and within ten years, before a significant portion of the population has access to the invention, the doomsayers are already talking of failed promises. As I think we can all agree, technology in itself has no real value; its value comes in its ability to serve human needs. Now forty years after its beginning, television is at last ready not only to entertain, but also to take its place as an important delivery medium for adult learning.

Before I go on to elaborate on the ways television is now fulfilling the promise of the visionaries of forty years ago, perhaps I should stop and answer a question that seems very much on the minds of educators and broadcasters today. Here we are on the brink of a new era in the use of television for higher education, and at the same time budget cuts seem to threaten the future existence of public broadcasting's brave new initiative in adult learning, perhaps even of public broadcasting as a whole. So let's get the big questions out and answered. Will there be a Public Broadcasting Service next year? Yes, there certainly will be. Internally, it will be different; it will be structured somewhat differently and the programming will be acquired somewhat differently. But to the viewing public, assuming that the viewing public continues to support public television through its membership dollars, the programming will remain at the same high level of quality and diversity that we have all come to love and expect.

Now to the second question. Given these reduced times, even if there is a PBS, will there be a PBS Adult Learning Service? Again, the answer is "Yes, Virginia, there will continue to be a PBS Adult Learning Service next year.'

The PBS Adult Learning Service was announced to the broadcasters and educators of the country just over a year ago on a national teleconference presented February 26, 1981. At that event, approximately 120 public television stations hosted an audience of some 3000 educators and broadcasters to hear about our new plan for a partnership between public television and higher education, a partnership that we believed and still believe offers a superb opportunity for public television stations and colleges and universities to serve better the communities that all are pledged to serve. The partnership is based on two major premises: first, that a national distribution service can effect economies of scale that will provide the best possible programming in the most efficient, cost-effective way; second, that the local control exercised by broadcasters over their own broadcast channels and by educators over their own curricula and standards is important and should be respected and assured.

The PBS Adult Learning Service has, in fact, been designed to meet these specifications. Our mandate is quite broad; we define adult learning as anything that helps an adult to learn. However, we have broken the concept into three broad areas: college credit courses, informal learning, and professional development and career training.

When we announced our new service, we knew that we had to win over three major audiences. First, the station managers—we had to convince them that our programming was worth their airtime. Second, the colleges and universities—we had to convince them that our programming was worth their credit and their staff time. Third, the people—we had to convince them that learning via television was not only fun, but was also very effective and satisfying. We projected that in our first semester we would sign up about fifty of the 170 public television licensees, about 200 colleges and universities, and about 10,000 students. The actual numbers far exceeded our most optimistic hopes. About 120 public television licensees, almost 500 colleges and universities and over 20,000 students participated in the fall, 1981, term, and we have more stations and more colleges and universities involved this spring.

In our broadcast service we concentrate on college credit courses, most of them for lower division students. We have a few courses for the more advanced students, and we are working on special materials and learning opportunities for the informal, non-credit learner. We also have a few opportunities for professional development, particularly for very large groups, such as teachers. (For complete details about our future schedule and further information about the PBS Adult Learning Service, you can write to: PBS Adult Learning Service, 475 L'Enfant Plaza, S.W., Washington, D.C. 20024.) However, the technology itself dictates that we must use that very precious airtime for large target groups. Each public television station has many demands for its service and only one open channel to meet many goals and objectives. So our adult learning programming on a broadcast outlet must be broad-based in terms of the audiences it attracts.

Clearly, we are not meeting all of the adult learning needs that we would like to meet and that colleges and universities, as well as other community entities, would like us to meet. At one end of the spectrum, there is a big demand for elementary skills training in such areas as welding and AC/DC currents; however, public television stations can only serve these needs in very few communities. At the other end of the spectrum, dozens of states require many professionals, such as doctors, nurses, lawyers, teachers, to refresh their education so that they are always at the top of their field; and in other states in which this updating is not required there is, nevertheless, a demand for the kind of constant training and education on the part of the professionals themselves. As Stanley Grabowski in *Preparing Educators of Adults* remarks: "Without continuing education, a professional's half-life may be only six or seven years." Yet most of the professional needs are too narrowly focused for public television stations to serve. Because we cannot satisfy all of these educational objectives via broadcast, we are now working to establish a new delivery system to address these needs.

The proposed new initiative is called the National Narrowcast Service. While broadcast television goes into every place where there is a working television set, the National Narrowcast Service would go only to those places that have special receive antennas. The plan is based upon the satellite interconnection which ties the public television stations together and the linking of the public television stations with other institutions and agencies within their own communities. These linkages via Instructional Television Fixed System frequencies (short range, point-to-point distribution channels) and/or cable would connect institutions of a similar kind nationally, regionally, and locally. Thus, programming schedules could be developed to provide education, training, and information to discrete audiences. For example, some of the associations representing higher education are eager to participate in this network because it will allow them to communicate regularly with their constituencies. They could schedule regular updates on legislative affairs affecting higher education, report the latest research findings, solicit interaction with administrators and faculty about new projects, and conduct a variety of workshops and seminars that may soon be too expensive for educators to attend away from their own communities. Colleges and universities could offer the kind of job training and professional development courses that are clearly needed and that now are either not available or are being offered by other entities. Museums could receive training for their staffs and could participate in major exhibits via television, whether those exhibits came to their communities or not. Libraries could share book reviews by nationally known critics and interviews with the world's best authors through a narrowcast system. Hospitals could receive programs and courses of study for every level of the hospital staff, as well as for volunteers and patients. And these possibilities scarcely touch the potential for the National Narrowcast Service for partnership efforts between public television and higher education.

Though I am very proud of our new initiatives in adult learning and think they hold great promise for service, I do not want to promote this healthy partnership between public television stations and colleges and universities as a panacea for all of the ills of either broadcasting or higher education. There are things that television education can do and do very well. But there are also things that television cannot do.

Here are two things that television can do well for most institutions. It can provide a very successful outreach program for adult learners. If one of your missions is to serve new students, to serve all segments of the community, to establish links with business and industry leadership and employees, television can certainly help. For example, there are fifty-eight million graduates of high school that have not graduated from college. Sixty million adults were involved in specific learning activities, and over thirty million learned two or more subjects last year. Do adults think television is a good way to learn? Colleges and universities that survey students taking television courses invariably report a very high level of satisfaction from the majority of those enrolled. In fact, a majority of these students say they plan to take more television courses. They cite convenience, flexibility, and savings in time and money, as well as the excellence of the courses as their primary reasons. A 1979 Roper Study revealed that thirty-four percent of the adults between the ages of eighteen and thirty-five said that they would like to take a college credit course on television and that they would be willing to pay for it. That percentage translates into 31 million people. Clearly, this potential student body has hardly been touched.

Television can not only reach these students, it can teach them. Yes, the answer to that embarrassingly old question is that, of course, television teaches. Businessmen and politicians spend hundreds of dollars for a few seconds of television time because television is a remarkably effective teaching and motivating tool. Television is the most heavily researched of all educational technologies. There are literally hundreds of studies asking the question: "Does television teach?" The answer is always the same: "Yes." And although the comparative studies often come out with the old familiar refrain—"No significant difference"—much more often than not, if there is a difference noted, it is that television students have learned more.

But television cannot do it all. For one thing, it cannot solve all of your budget woes. Usually, television instruction, at least that offered by the PBS Adult Learning Service, is cost-effective; that is, your costs per student, while quite different in make-up from that of regular classroom instruction, will be about the same as those for on-campus courses. But making those costs equal—or lower if you have high enrollments—will not make your institution rich. Television instruction should be viewed as a way to reach new, hesitant, and busy students, not as a get-rich-quick scheme.

Still another thing television will not do is replace teachers and classrooms. If it could, it probably should. As B. F. Skinner reportedly said: "If you can be replaced by a little black box, you should be." But actually, every television course needs a committed teacher to manage it at the local college or university, and the better that teacher is, the more satisfying the television course is likely to be for the students enrolled. Contrary to Mae West's famous line that too much of a good thing is wonderful, taking all of the courses for a college degree via television would probably not be ideal. A variety of learning experiences, including the traditional classroom with its traditional interaction among students and teachers, would be better. Still, the ideal may not be possible for all, and giving adults the option to use television courses as they wish or need to do to accomplish their own goals is a worthy ambition for higher education.

What we must do is examine the consequences of our choices. Unlike the Mark Russell ditty—"Once the rockets go up,/Who cares where they come down,/It's not my department,/ Says Werner Von Braun"—it is our department to know whether or not we have looked after the institutional health of our colleges and universities and after the educational health of our communities. We cannot let fear of being replaced make educational Luddites of us nor love of gadgets make us fools. As always, we stand now on the brink of the future. Unfortunately, the old line that the trouble with the future is that it is not what it used to be retains its ironic truth. Nevertheless, the future is still what we will make it. And higher education and public television have a unique opportunity to enhance their futures and the future of our nation by a strong commitment to their new partnership in the use of television for adult learners.

Article 42

"The Central Educational Network's Postsecondary Service"

by
Carol A. Koffarnus

Introduction

No one will deny that many colleges are experiencing a declining enrollment of 18–22 year old students. No one paying their heating or gas bills will deny that energy costs are increasing and the end is not in sight. These energy costs are also having an effect on the educational institutions. No one will deny that tuition costs will continue to rise. In addition to these events, we are also being told that financial support from government and private sources is decreasing. All of these events will have an affect on the adult learner and the educational institutions, but there is another side of this coin. With our rapid technological advances in America, our information systems will *double* every eight years. Think about it. These same adults will need a continual updating of information and upgrading of skills to keep pace with this new technology. There are adults in and out of the work force. They will need to learn how this technology will affect their jobs and lifestyles and then meet those changes without fear. Education entities have a tremendous responsibility to these learners and must take the leadership in this life-long learning process.

They will be teaching an older, adult learner rather than the traditional 18–22 year old and they will have to adapt to that fact. People within a given community need education at basically five different levels:

1) Basic education
2) Occupational education
3) Occupational upgrading
4) Job changes
5) Leisure skills

Within these levels there are millions of adults who will need life-long learning programs that are meaningful to them and available at their convenience. Looking at statistics we would have to concede that higher education needs to improve in this area. According to the American Association for Higher Education a majority of adult learners are getting their education outside college and university settings. Fifty-eight million, four hundred thousand adults each year are

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From Carol A. Koffarnus, "The Central Educational Network's Postsecondary Service," in *Technology and Education: Policy, Implementation, Evaluation,* 1981, pp. 196–200. Reprinted by permission of Institute for Educational Leadership, Inc.

involved in some form of organized education, while only 12.4 million of them are colleges and universities. Programs offered by business, government agencies, professional organizations, telecommunications field and other organizations are educating five times as many adults as are higher education institutions. The financial resources devoted to this enterprise are staggering. It is estimated by the American Society for Training and Development (*ASTD*) that American business, alone, devotes $40 billion annually to employee education exclusive of college programs. Clearly new fields, a wider array of resources, such as television and radio, need to be employed by higher education in order to involve a new adult learning clientele into their program.

Meeting Adult Learners' Needs

The challenge to meet the needs of the adults who want and need to learn more is great but we have never shied away from a challenge. In fact, history has shown that when the challenges were greatest we exerted our best efforts and overcame the problems.

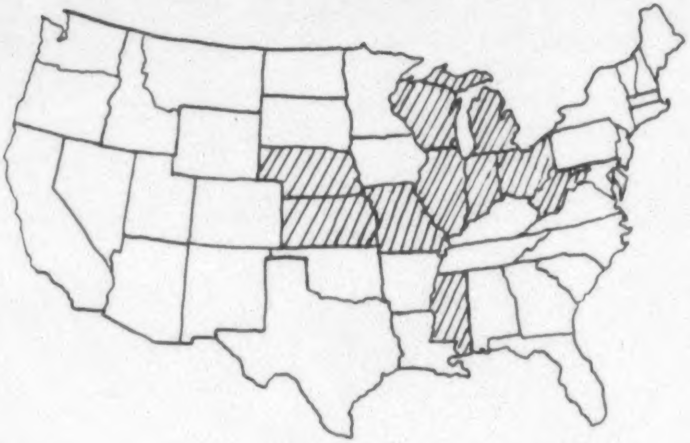
Because the task is formidable, meeting the needs of adult learners in this decade cannot be done by colleges and universities alone. There must be a *unified effort* where we can capitalize on all of the resources we have to meet the diversification of the learners' needs in our communities. It is here where I believe telecommunications can work with colleges and universities in providing an *educational alternative* to meet some of those learners' needs. It not only can, but we have shown in our service that it does.

The Central Educational Network's belief and commitment to this concept is what began the first postsecondary telecommunications service in the country. *CEN*'s Postsecondary Education Council was formed in October, 1979 to meet these needs. The Council consists of postsecondary institutions and broadcasting entities. It is important to remember this point.

During the past fifteen months, states interested in postsecondary telecommunications as an alternative to reaching the adult learner, were asked to form their own postsecondary state councils. These state councils are composed of, but not limited to, members from two and four year private and public colleges and universities, public broadcasters, and vocational/technical institutions. No two states are structured exactly alike. (We will be publishing a report later this year on these various state structure models.) Each state set its own by-laws and nominated one member from its state council to represent it on the CEN Postsecondary Council. You have one state, one vote. The Council meets twice a year. At the present time the following ten states have organized themselves and are members in our Council: Illinois, Indiana, Kansas, Michigan, Mississippi, Missouri, Nebraska, Ohio, West Virginia and Wisconsin.

You will be able to see the postsecondary and broadcasting representation on the Council by each state's representative's professional title:

Illinois—Director of Educative Services for a public broadcasting university station
Indiana—Dean of Learning Resources for Media, Indiana University at Bloomington
Kansas—Director, Office of Instructional Media for a state university
Michigan—Instructional Television Coordinator for a public broadcasting university station
Mississippi—Director of Educative Services for the Mississippi Educational Television Network (State System)
Missouri—Dean of the College of Arts and Sciences for Continuing Education at University of Missouri-St. Louis



Nebraska—Director of Instructional Services for the Nebraska Education TV Network (State System)

Ohio—Executive Director of the Ohio Educational Broadcasting Network Commission (State System)

West Virginia—Educative Services Coordinator for a public broadcasting station

Wisconsin—Director of Educational Services for the Wisconsin Educational Television and Radio Networks (State System)

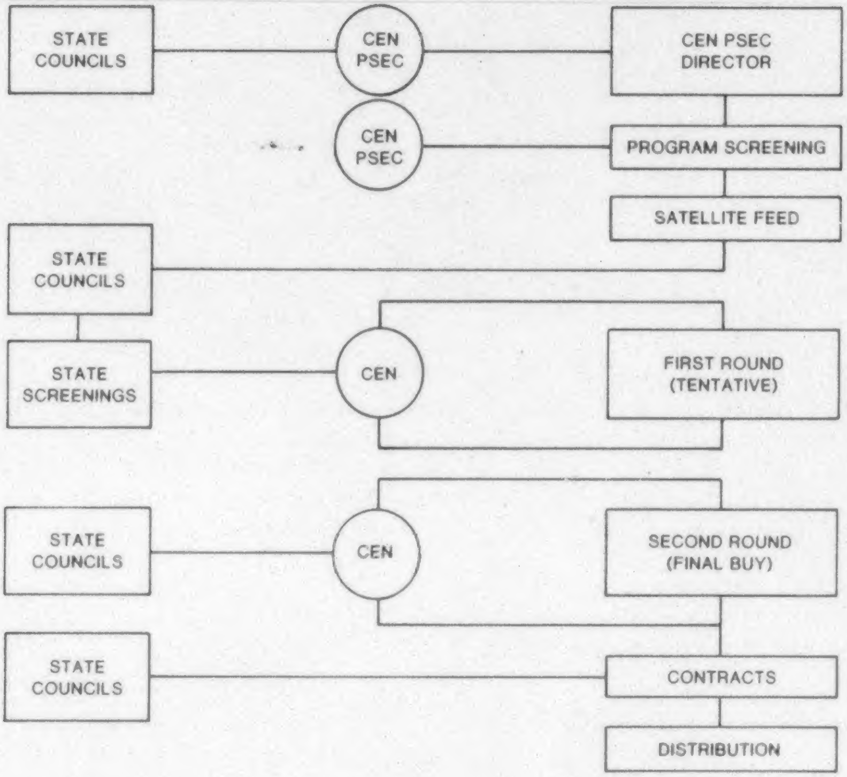
Our Postsecondary Education Council is a self-supporting, self-governing division of CEN and elects four of its members to the CEN Board. These four members comprise the Postsecondary Executive Committee and work closely with CEN's Postsecondary Coordinator.

The Council has set its goals and these include, but are not limited to:

1) Providing services to increase the availability of quality credit and non-credit materials to reduce costs in postsecondary educational telecommunications.
2) Identifying problems, issues and successful methods related to expanding postsecondary learning opportunities in the states through telecommunication and
3) Sharing expertise and resources to strengthen postsecondary education telecommunication in the states.

Individual services that are offered to the membership include, but are not limited to:

1) To serve as a professional resource organization and accessing postsecondary educational telecommunication needs and interests of the states.
2) To identify postsecondary telecourse materials for their annual program screening.
3) To negotiate group rentals and buys of programs for the membership.
4) To provide scheduling and distribution of the program series.
5) To sponsor an annual postsecondary professional development workshop for the exchange of information. This year we will be producing an interactive teleconference from our satellite uplink in Lincoln, Nebraska on "Marketing Telecourses" with Dr. Roberta Clark from Boston University.


STATE COUNCILS
CEN PSEC
CEN PSEC DIRECTOR
CEN PSEC
PROGRAM SCREENING
SATELLITE FEED
STATE COUNCILS
STATE SCREENINGS
CEN
FIRST ROUND (TENTATIVE)
STATE COUNCILS
CEN
SECOND ROUND (FINAL BUY)
STATE COUNCILS
CONTRACTS
DISTRIBUTION

6) To provide a monthly memo informing them on local, state, regional and national postsecondary telecommunications activities.
7) To provide a free videocassette library loan service for the membership.
8) To seek grants for assistance in facilitating the above grants.
9) To coordinate other services designated by the Postsecondary Education Council.

Costs

Costs to the membership are based on a flat fee of $3,000 assessed to each state equally plus a graduated fee based on a scale reflecting the state's total population. For example the state with a total population of 5.5 million people would pay $5,750 to belong to Postsecondary Educational Council for one year and participate in the above services. Each state council decides on how these dues are assessed and collected. To show you the diversity of how the membership dues are collected here are three examples:

In Missouri, each membership category in their state council is assessed according to their FTE's and 100 percent participation. The membership categories in their state organization are:

1) University of Missouri Systems
2) Regional Universities
3) Missouri Association of Community and Junior Colleges

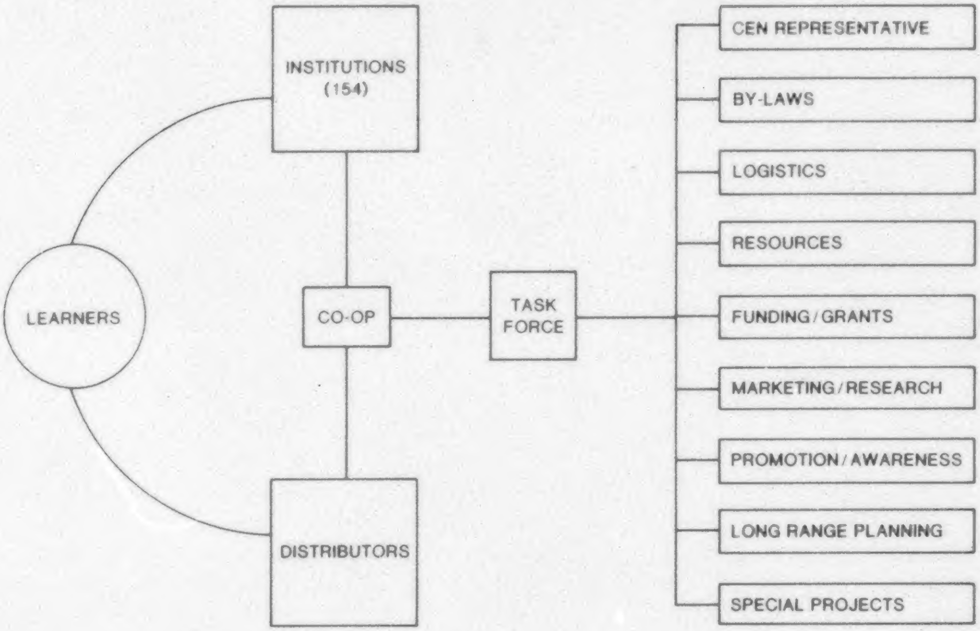
4) Independent Colleges and Universities of Missouri
5) Missouri Association of Private Career Schools

In Illinois, the state council applied for and received a grant from the Illinois Board of Higher Education to cover the membership fees for all 154 postsecondary institutions in Illinois.

In Mississippi, the membership dues are paid for by the Mississippi Educational Television Authority. We saw earlier how diversified the models of each state council can be. Assessing of their membership fees are also diversified.

Two grants during our first year of operation assisted us in getting established. A grant from the Corporation of Public Broadcasting Education Services Department paid the membership base fee for each state that joined. This year they had to generate their entire dues from their newly formed state councils. All of the ten states were able to do this. In addition to the CPB grant the Exxon Education Foundation gave us a grant to begin our service and our postsecondary videotape free loan library to the members.

This year we were awarded another grant from the Exxon Education Foundation of $38,985 for membership expansion. Specifically, the funds are available as a 50 percent match for each new state interested in joining the CEN Postsecondary Education Council. States joining us need to pay only half of their membership fees for the initial year. Membership is open to any state.


INSTITUTIONS (154)
LEARNERS
CO-OP
TASK FORCE
DISTRIBUTORS
CEN REPRESENTATIVE
BY-LAWS
LOGISTICS
RESOURCES
FUNDING/GRANTS
MARKETING/RESEARCH
PROMOTION/AWARENESS
LONG RANGE PLANNING
SPECIAL PROJECTS

Summary

Although we have come a long way in the past fifteen months we realize we have a long way to go. Besides continuing to upgrade the existing services there are several other areas that we see in our future growth of our postsecondary council:

- Delivering out most utilized telecourses via our satellite to the users and eliminating all the tape dubbing and shipping costs.
- Expanding our radio telecourse offerings to the members.
- On mutual course needs, form a program consortium to get those programs produced.
- Implement, whenever needed, the new technology such as videodisc, 1" inch videotape, direct broadcast satellites, the teletext systems, fiber optics, etc. into our service.
- On-going professional development workshops at minimum costs to the members. These workshops will deal with the needs expressed by the members.
- Extend our telecourse programs to a broader base in the community through more inter-agency and inter-institutional cooperation.
- Expand our service to include more states.
- Work with other educational and broadcasting entities to promote the development of more quality telecourse programming in radio and television.

We realize that we are not the total answer to the solution of reaching and teaching the adult learner, but we are confident that we can be part of that answer. If all the resources in our society take on part of that solution then we will succeed. Someone once said, "We are only one, but we are one."

Article 43

"Community College and Television Station Collaborations: What Makes Them Work"

by
Penelope L. Richardson

The Questions

What are the factors that help or hinder community colleges and television stations when they attempt to work together to serve off-campus adult learners? What are some examples of successful collaborative relationships between stations and community colleges?

These two questions were investigated from March to July, 1979, by the American Association of Community and Junior Colleges, under the auspices of a grant from the Fund for the Improvement of Postsecondary Education. Collaborative relationships between community colleges and television broadcasters were studied at three community colleges and for three consortia: Kirkwood Community College, Cedar Rapids, Iowa; Maryland College of the Air, Owings Mills, Maryland; Miami-Dade Community College, Miami, Florida; Rio Salado Community College, Phoenix, Arizona; Tri-State Consortium, Paramus, New Jersey; and Washington Community College Consortium, Tacoma, Washington.

During a series of two-day site visits, interviews were held with consortia leaders, community college administrators, television teachers and telecourse managers, station managers and program directors, representatives from state or local community college boards, students of television-centered courses.

Eight factors previously identified* as important to successful station/college relationships were presented informally or by interview questionnaire to 37 staff members at the sites, who rated the presence and importance of these factors. They also ranked some specific examples of each factor and elaborated with descriptions of their own experiences in building collaborative relationships among stations and colleges.

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From Penelope Richardson, "Community College and Television Station Collaborations: What Makes Them Work?," in Kressel (ed.), 1980, pp. 14–30. Reprinted by permission of American Association of Community and Junior Colleges.

*In a study funded by the Corporation for Public Broadcasting (Richardson, 1979) and conducted from December–March, 1979, phone interviews were conducted with 26 program managers, station managers, college executives, and telecourse coordinators across the nation. Eight tentative "success factors" were identified. These success factors were reformulated into an interview questionnaire which was used as the basis for data-gathering for this present AACJC study.

Rating the Factors

According to these staff members, the factors were rated on a scale of 1–5 as having the following importance:

Quality of Instructional Materials. Course materials offered (television, print, audio, other) must be excellent in learner appeal, academic content, production quality, and instructional design. (Mean = 1.2; N = 30)

Positive Station-College Relationships. The relationship must be based upon mutual self-interest, mutual respect, and mutual understanding of each other's priorities and constraints. (Mean = 1.3; N = 31)

Commitment of Leaders. Key individuals at various levels, but particularly institutional leaders, must believe in the value of the enterprise and must make a tangible commitment to it. (Mean = 1.4; N = 30)

Learner-Centered Focus. The total instructional system must be designed and coordinated with the needs of the adult learner at the center. (Mean = 1.4; N = 29)

Supportive Context for Distance Learning. Policies at the local, state, and federal level must facilitate access, flexibility, and outreach. (Mean = 1.5; N = 25)

Governance. Consortia/institution authority relationships must be clearly delineated and a management system developed for implementation. (Mean = 1.9; N = 30)

Stability. A firm financial and legal basis for operations must be established which allows for long-range planning and development. (Mean = 1.9; N = 29)

System Linkage. A communication/clearninghouse system must be established between levels of governance (institutional/state/federal) for sharing of resources, information, expertise, and political support. (Mean = 2.1; N = 27)

The faculty generally scored the amount of the factor present at their sites as much less than its importance, but gave them the same approximate rank ordering, as indicated below:

Rank	Factor	Mean & N responding	
1	Quality of Instructional Materials	2.2	30
2.	Station/College Relationships	2.3	31
3.	Learner-Centered Focus	2.6	29
4.	Commitment of Leaders	2.7	30
5.	Governance	2.8	30
6.	System Linkages	3.0	25
7.	Supportive Context for Distance Learning	3.3	24
8.	Stability	3.4	29

For example, the mean rank of the importance of quality instructional materials was 1.2, while its average amount at all sites was judged to be 2.2, a full interval away. This may reflect a natural tendency to judge the familiar site (the workplace) as less desirable or more distant than the ideal, but it is interesting that the rank of the factors is nearly identical between the ideal and the familiar, and provides some evidence for both the list of factors, their ranking, and the choice of these sites as examples of successful operations.

Table 1 shows the ranking given to each of the five definitions listed under each factor.

Table 1

All Sites / All Staff: Average Rank of Each Definition of Each Factors

Commitment of Leaders	
Resources of time, staff, and money made available by station, college, and community.	1.9
Individuals with clout at college or station appointed as consortium representatives.	3.0
Effort expended by leaders on solving political and operational problems.	3.0
Public statements of advocacy made by policy-makers (college board members, presidents, deans of instruction, station managers, program directors).	3.6
Special incentives and support services offered to staff members who contribute and participate.	3.7
(Total N = 35)	

Governance	
Initial agreement reached on the purpose of the consortium: the differing expectations of various members explored and a method for determining priorities established.	2.1
Routine operational arrangements carefully worked out so they can be easily administered information on course schedules, registration, access to materials, credit).	3.0
Appointment of a full-time professional to provide administrative leadership in budget management, course selection or development, personnel development and training, interpersonal relations.	3.1
Governance mechanisms established for each level (executive council of consortium; subcommittees such as curriculum, course promotion, finances; special committees at campus and station to perform necessary functions).	3.1
Regular sessions of the consortium scheduled for information exchange, policy-making, specific decisions.	3.2
(Total N = 33)	

Learner-Centered Focus	
Local support services foster involvement (personal contact by phone or mail, etc.) and feedback (grades, self-study quizzes, etc.)	1.9
Administrative arrangements designed for adult learner: information and recruitment materials easily available; simple procedures available (for registering, taking exams, obtaining course credit, etc.)	2.3
Each course designed as a coordinated instructional system, with all components working together to serve the same instructional objectives.	2.5
Television programs offered at times convenient to the adult learner.	3.0
System has a special game plan, including processes for academic administration, target population assessment, inservice training for counselors and course managers, curriculum development and design, research and evaluation.	3.6
(Total N = 37)	

Stability	
Sufficient funding to cover course lease fees, videotape stock, air time, promotion costs, administrative / instructor staff time.	1.5
Equitable financial assessment system, based on differing size and strength of member institutions.	2.3
Constitution / bylaws of consortium spelled out in writing; legal / contractual authority vested in central administrative unit.	2.6
Mechanisms exist for institutional contributions to provide venture capital for production of new courses.	3.6
Procedures exist for withdrawal of member institutions in an orderly, stable fashion.	3.7

Table 1—*Continued*

Quality of Instructional Materials	
Materials must have substantial educational content and meet the standards of the college.	2.2
Materials meet learner's needs, stimulate interest, have broad appeal, and attract large, general audiences.	2.5
Materials are structured to enhance motivation, participation, persistence, and learning on the part of the at-home learner.	3.0
Materials are of high production quality and meet the standards of the station.	3.0
Materials are designed for flexible and compatible use in a variety of settings.	4.3
(Total N = 35)	

Positive Station-College Relationships	
Commitment from general manager/program director to educational broadcasting and to cooperative relationships with colleges; provision for curricular input at earliest possible stages.	1.9
Joint awareness of importance of communicating schedules, course information, changes, as far in advance as possible.	2.6
Commitment from colleges to television-centered courses that are competitive in production quality with station's regular programming; respect for production expertise.	2.7
Joint awareness of politics of dealing with faculty and station personnel in a time of limited finances and limited facilities.	3.6
Joint commitment to building audiences and to marketing products nationally; adequate lead time between production and release for preparation of printed materials and for implementation of promotion and utilization plans.	3.7
(Total N = 35)	

System Linkages	
System linkages developed, among colleges, among stations, and among consortia interested in television-centered materials development and use.	2.8
Information available on existing courses, on available course development funds, and on new course production priorities.	3.6
Strategies developed for sharing expertise in staff development, institutional development, technology development, etc.	4.2
Strategies developed for promoting compatibility among organizations in the system (for credit-granting, staff salaries, finances, etc.).	4.8
Strategies developed for lobbying at local, state, and national level on behalf of the at-home "distance learner."	5.6
(Total N = 22)	

Supportive Context for Distance Learning	
Flexible policies for admissions, transfer of credits, assessments of prior learning, competence-based assessments.	1.5
State financial aid available for part-time "distance" students on same basis as to regular students; reimbursements available to institutions on same basis as for regular students.	2.5
Cooperative relationships established with other community agencies: business, industry, labor unions, museums, voluntary agencies, social service agencies.	2.6
Federal policies and programs which support "distance" learning supported; funders interested in research and development of concept.	3.3
Satisfactory arrangements with teachers unions and broadcast station unions.	—
(Total N = 32)	

The Sites

The sites were selected by Project Director Marilyn Kressel, with the advice of members of the National Advisory Committee and of the Task Force on the Uses of Mass Media for Learning of the American Association of Community and Junior Colleges (AACJC). Sites were selected to represent different geographic areas, different types of station-college relationships, different consortial or organizational structures, and different histories of successes and problems. Each site selected had shown a commitment to serving adult learners through cooperative relationships between stations and colleges.

Kirkwood Community College

Kirkwood Community College, in Cedar Rapids, Iowa, was founded to serve all the citizens of its seven-county area. Telecourses are but one of many "non-traditional" means of delivery at Kirkwood; the college also employs a vast telephone network system, with a site in each of the counties served by the college, and outreach in prisons, hospitals, and community agencies.

Kirkwood has won many grants for innovative instructional practices and has a large library of instructional television materials for on-campus use. It is one of the few community colleges in Iowa which makes good use of the courses offered through the Iowa Public Broadcasting Network, and it has been active in the Television Task Force recently formed to advise on the coordination of such statewide, postsecondary activities. Representing a rural area, Kirkwood exemplifies use of appropriate media to truly reach "the distance learner." At Kirkwood, those interviewed were the director of credit programs, the associate director of non-traditional studies, two telecourse teachers, and five students. The director of educational services for the Iowa Public Broadcasting Network was also interviewed.

Maryland College of the Air

Maryland College of the Air, an 18-college consortium which covers the state and includes community colleges and four-year institutions, has been in operation for nine years. The collaborative relationship was initiated by the Maryland Center for Public Broadcasting, which is committed to the idea of making postsecondary education opportunities available through television. The consortium operates in a low-key, no-nonsense fashion. A representative at each of the 18 campuses is responsible for campus-level operations and relations with the Center's staff.

College of the Air is an example of a loose confederation of colleges coordinated through one central office at a state television network. Those interviewed were the consortium director at the Maryland Center for Public Broadcasting and his assistant, three professors from three different colleges, a director of community development, and a director of learning resources.

Miami-Dade Community College

Miami-Dade Community College serves the metropolitan Miami area through collaborative arrangements with two public stations, one commercial station, and the hope of linkages with cable stations. The college is a place prepared to deliver television-centered instruction. In addition to developing nation-wide markets for telecourses, Miami-Dade is concentrating on developing television-supplemented courses for flexible use on its own college campuses. It is worthy of study because of its history, accomplishments, and perspective on the future. Those interviewed were the president, the executive vice president, the vice president for educational services, the director of auxiliary services, the student personnel specialist, the director of research, and director and four instructors of Open College. Two executives at public television stations were also interviewed, as well as one college board member.

Rio Salado

Rio Salado, the newest college in the Maricopa Community College District of Phoenix, is a college without a campus established to ensure that all citizens in the county have lifelong learning opportunities and can realize their fullest potentials. The college was created to provide educative services to community groups currently unreached by delivering educational programs in workplaces, community sites, and through alternative delivery systems. To reach distance learners through telecourses, collaborative arrangements are in effect with KAET-TV, licensed to the Arizona State University, and with KTVK, the ABC affiliate.

Rio Salado and a number of other institutions in the area have just begun a collaborative arrangement coordinated through Arizona State University which includes linkages with stations, universities, hospitals, training centers, and other types of community agencies.

Tri-State College Consortium

The Tri-State Consortium of New Jersey, New York, and Connecticut covers a significant portion of the northeastern United States and exemplifies the problems and opportunities inherent in the coordination of diverse activities of diverse institutions. Tri-State can be termed a super-consortium, a linking mechanism for a variety of collaborations and may soon be enlarging to include members from Maine to Maryland.

This complexity of relationships has meant that the six-year history of Tri-State Consortium has been one of false starts and new beginnings, with no initial agreement on the consortium's mission and, until recently, no central unit empowered to govern and manage its affairs. Tri-State appears to have a bright future, and is moving toward the achievement of stability and a firm management structure. Those interviewed were two consortium directors, three teachers, four television people (from a state public network, a cable company, a commercial station, and a community station) and an assistant dean.

Washington Community College Consortium

This statewide consortium, coordinated at the state community college board level and through a contract to a local public station in Tacoma, is an example of a consortium in its second year of existence which is struggling to remain viable against severe odds. Though avidly supported by many of the college members and by several of the local public stations involved, its financial base is not firm, and it is prevented by state law from promoting its courses. The future of its best station-college relationship is in doubt, since the coordinating public station recently was sold to a commercial interest. Yet the people involved are working very hard to make the consortium work and to be able to offer courses to adult learners. Individuals interviewed included a state board member, two deans, two media coordinators, three instructors, one student, and a director of educational services for the TV station.

Appendix B [see original document] contains further background information and the names and addresses of the members of each site, as well as a list of individuals interviewed. Additional information is given on consortia operating in the states where Miami-Dade, Kirkwood, and Rio Salado Community Colleges are located.

Quality of Instructional Materials

There was not clear agreement among staff members as to the meaning of this factor. The definition which received the highest mean rank was: "Materials have substantial education content and meet the standards of the college," but close behind was: "Materials meet learner needs, stimulate interest, have broad appeal, and attract large, general audiences."

One dilemma that seems clearly evident is the difference in what motivates students to watch the programs and what causes learning to take place. "Color adds nothing to our philosophy course, nor movement," says Dick Smith of the Maryland Center for Public Broadcasting, "but audiences won't watch without it. We could cut costs a lot if we were just making programs for their teaching qualities, not their appeal." In fact, according to Smith, sometimes the courses that attract the most attention are not the best. "Our 'Human Sexuality' course got large enrollments, but many questioned its academic quality. That poses the moral question: Do you run a course to get student enrollments, or because there's an educational reason to do it?" Smith feels that all the hocus-pocus about production quality and learner objectives takes away from the content. "The student who self-selects himself into a TV course has the motivation or he wouldn't be there."

Further, Smith sees a sharp difference between eastern and western attitudes toward educaton. "It's as if they throw a switch at the Alleghenies," he says. "There are different expectations and standards out west. Coast Community College in California gets huge enrollment in home gardening and interior decorating, but in Maryland we can't offer those courses for credit."

His comments reflect the nationwide debate over what is and isn't appropriate for community colleges to offer, and whether it is more legitimate to offer liberal arts and vocational technical courses than leisure-oriented and community-based courses.

Joyce Elsner, Dean of Alternative Education Services at Rio Salado, wants both. "I want a balanced schedule each semester, not just fun and games, and I *will* compromise on production quality," she says. For students who want to learn metrics, she says, "Telecourse teacher Mary Malm at the chalkboard does a great job—comes across with personality and enthusiasm." Rio Salado's radio course, Word Study, another locally-produced, low budget production ("you can hear her flipping the pages over the mike") is criticized by production experts, but beloved by the students: "They ask for it semester after semester."

Elsner feels that a realistic goal in 10 years might be to offer 30 percent of the courses any given semester through media. "The person who lacks basic skills probably can't handle the alternative delivery system at all—that person needs personal contact and much developmental help," she comments.

Ned Glenn at Miami-Dade makes a similar observation: "At Miami-Dade Community College, the two ethnic groups which together represent more than half of the school's student population are underrepresented. This is the case in most non-traditional programs, including telecourses. Courses geared toward 'developmental' skills are costly to produce and deliver and require intensive human follow-up to be successful."

Ken Roberts, instructional designer at Rio, does have some suggestions on ways courses can be designed to assist the able but insecure student:

> "Some students enroll in telecourses because they're unsure of their capabilities. We must design the courses so that they have a successful learning experience. For example, the student guide should be designed with built-in, required, overt responses to materials, with practice items for each main concept and required quizzes for each unit. We must not allow passive, dead responses on the part of the at-home student. Active learning must be required, before, during, and after viewing."

To Bob McCabe, executive vice-president at Miami-Dade, "quality of instructional materials" means material designed for individualized, independent, and flexible use by students and faculty in a variety of settings. He feels that the new technologies have arrived just in time to meet a whole new set of learning needs:

> "So many professions require upgrading and retraining of people, yet the people are spread out all over the state. But with a combination of a home videodisc player, or a baby computer with cassettes, we could deliver all kinds of instruction to the home. If these things can play a good game of chess, why can't they teach inter-active, self-paced math?"

McCabe feels that Miami-Dade's main contribution to individualized instruction is their Response System with Variable Prescriptions (RSVP), a computerized system of responses to students, which can be used to advise, individualize, provide feedback on tests, and prescribe appropriate instructional assistance. The general education curriculum has just been revised and McCabe foresees the development of a whole set of mediated instructional materials to assist faculty in diagnosing, placing, remediating, and facilitating the learning of students.

Kamala Anandam, director of research, gives these examples of the uses of the RSVP system:

- Both Open College and on-campus course instructors use it to gather and analyze survey information on students.
- Basic skills—reading, writing, and math—can be diagnosed through testing and appropriate remedial sequences can be prescribed. The computer can select from 3,000 possible assignments the one best suited to a particular student. As the student improves, the computer will assign him to a higher instructional level.
- In math, test questions are written so that the wrong answers enable a diagnosis of the student's problem. The distractor items, the "wrong" answers in a multiple-choice test, are written so that they tell the instructor *why* the student didn't understand.

A side benefit is faculty development: faculty think much more seriously and analytically about how to improve the teaching-learning process when they work in this painstaking way on each aspect of their instruction and testing. Anandam considers this teaming of content expert and measurement specialist in the design of materials to be essential if content quality is sought in instructional materials.

On the question of the academic quality of telecourse materials, there are varied views. Several students at Rio Salado mentioned the American history course they had taken by television. "It was very well done." "The study guide integrates the text and the television, so that you have a thorough knowledge of the subject." "I never realized American history was so damn interesting: I began to see how it all fits together." The students were indignant that the course had come under fire from faculty members at other campuses, feeling that it had "given insight into places, people, terrain," and dealt much more with relationships than does the usual history course.

Another student mentioned the importance of materials that stuck to business and provided needed information in an interesting but serious way. "When I'm studying, I don't look for jazzy frills."

Jennifer Snell, psychology teacher at Kirkwood, found "The Growing Years" telecourse materials to be of excellent quality, presenting a thorough and scholarly view of the subject matter:

> "Many of the experts interviewed on television were leading psychologists whom I'd read about while getting my degree, but whom I'd never seen in person. Teaching the course was a good way for me to update my own background in the field."

On the other hand, faculty at Maryland College of the Air rejected far more telecourses than they accepted. They think there is still a great dearth of excellent programs.

Dan McAuliffe, director of televised instruction for the Connecticut Regional Community College System, has a broad view of things, since the Connecticut consortium has been in operation six years:

> "Programs like 'Ascent of Man,' 'Man and Environment,' and the 'Adams Chronicles' changed the whole picture as far as video techniques go. With their large production budgets, they would copy the video techniques of commercial television, and they have brought TV instruction up to the modern day. When we select and screen series, I look at the level of production and styles, along with the backup material. I look for a total instructional package: a comprehensive and scholarly textbook, a study guide which ties together the visual and written components, a good set of pre- and post-tests to reinforce the teaching points, and well-produced and interesting television materials. When you're judging quality of instructional materials, it's the educational value of the total instructional package that counts."

Positive Station-College Relationships

This factor was defined by most staff members as "commitment from general manager/program manager to educational broadcasting and to cooperative relationships with colleges." As will be seen in the examples, this commitment manifests itself in many ways, and it is a commitment that must be backed up by hard work from staff members at various levels.

Connecticut's TV Community College, an associate member of Tri-State, is successful in large part because Connecticut Public Television's president and general manager, Paul Toff, comes from an educational background and believes in public television for instruction. "Without commitment at that level, you won't get it from the staffs," says McAuliffe.

CPTV's commitment is manifested in a variety of ways: It devotes free air time to TV College, plus facilities, personnel, and on-air-promotion. In addition, it helps the colleges place advertisements through state newspapers, provide convenient morning and evening program times so students with different lifestyles can be reached, handle shipping of videotapes, and make available multiple copies of promotional tapes to commercial TV stations.

One example of the commitment of both station and colleges to the concept was the appointment of McAuliffe in 1973 to coordinate the affairs of the consortium. He works with the colleges directly, appointing a TV coordinator for each campus. The coordinator then acts as a funnel for communication in all television matters, passing along information to instructors, distributing promotion materials, acting as an information resource for students, and as a liaison to the regional office. Commitment and follow-through are required at each level for the system to function smoothly.

Dick Smith feels the Maryland Center for Public Broadcasting made the commitment to ETV because of the philosophical base of its director, Richard Breitenfeld. "The bulk of our dollars goes into community service projects: review of the arts weekly, family events, legislative and government press conferences, programs for the farm communities, 'Maryland Week in Review."

Commercial stations as well are often motivated to contribute air and production time as part of the public service commitment for their license renewal. In Phoenix, the local ABC affiliate, KTVK-TV, donates 30 minutes to Rio Salado five times a week, 52 weeks a year, for a total of $26,000 worth of air time. In addition, the station also donates production time for telecourse and community service programming. In New York, WCBS's "Sunrise" and "Sunset Semester" pioneered in adult education, contributing the time from 6:30 to 7 a.m. six days a week, 12 months a year, nationwide, and contributing air-time, studio support facilities, and a small production budget, too. Bergen Community College, a Tri-State member, is one of its partners. Bergen develops the program idea, print materials, and guests; CBS provides the studio and production expertise.

One of the ways station managers and program directors show their commitment is by spending time and effort solving political and operational problems. "No one but leaders can solve them, and it must be part of their job," says director of postsecondary education Elizabeth Adams of the New Jersey Public Television Network.

For example, last year she and the director of education services spent four months visiting each of the 63 colleges and universities in New Jersey. They met with presidents, deans of instruction, public relations people, academic affairs representatives, and faculty members. They explained NJPTV and what it could do for higher education, and followed up by inviting representatives from all campuses to a statewide meeting (35 sent representatives). At this meeting all network executives were available to answer questions ranging from policy to operations. "The whole point," says Adams, "was to demonstrate that we think postsecondary education through television is a good idea, and we're willing to work with them on it."

On the other hand, postsecondary instruction is not a high priority of all station managers. Persons from both stations and colleges acknowledged that many community-based public stations are more interested in reaching the general public than in delivering instructional programming. As one interviewee put it:

> "KCET, NET, WTTW, WGBH—have created a cultural network, and that's the orientation of the Public Broadcasting System's D.C. staff, too. So education gets a pretty short shrift, unless you have a state education network as they do in South Carolina, Iowa, Kentucky, or Maryland," commented one.

Tim Gunn, director of the office of postsecondary education of WNET, responds, "Our broadcast schedule is as compacted as that in any area, and it's difficult for us to free up as much air time as educators would like, though it's my job to make inroads on that. It is of importance to WNET that the quality of materials be high and of interest to a general viewer."

As evidence of WNET's commitment to the adult learner, Gunn points to the Adult Open Learning Program, funded by the Fund for the Improvement of Postsecondary Education and aimed at the adult student who's been away from school for a while.

> "Students like that aren't so adaptable to the absolutely independent study mode," he says, "so the colleges involved have made a commitment to meeting with them at least once every two weeks in a place accessible to community members: the Bronx Post Office, the Bronx Psychiatric Center, on Saturday mornings at the City University of New York, and other places. Also, the series involves only a total of about nine hours of television, rather than being locked into 30 half hours."

In a similar vein, John Felton, vice-president for programming of WPBT, Channel 2, in Miami, describes the station's relationship with Miami-Dade.

"The problem is, we're two different animals. We work well together because we have a good understanding of each other's situation, but our goals, our schedules, and our constraints are very different. The college has to lock its schedule in a semester ahead, and we're lucky to have ours in place two months ahead. They do long-range planning, while we make decisions year-to-year. They're aiming for specific student groups and we're serving a broad community audience."

Felton believes that cable TV and video cartridges are better ways to deliver instructional programming, and sees his station as producing and distributing such programming in the future.

Don MacCullough, director of media programs for Dade County Public Schools, is also rather lukewarm about building a close relationship between Miami-Dade and the school district's television station.

"There's only so much air time, and we have to be sure that what the college wants to use it for is what the public wants too. From my standpoint, I'd need to be sure it's worth the time, money, and effort to go into this in a big way." He adds that he's been trying to interest Miami-Dade in delivering programs through alternative means, such as a four-channel instructional television fixed service system which reached 50 community schools until 10 p.m. each evening.

Members of the Washington Community College Consortium wonder if they can survive without good, strong relationships with their local stations. Their main station supporter, KCPQ in Tacoma, has recently been sold to a commercial interest. The other public television station in the area, licensed to the University of Washington, has other priorities than working closely with the community colleges. "We can't succeed without it, unless we have the state locally wired with interconnecting cable linkages," states Consortium Director Gary Sivertsen.

Ultimately, of course, stations managers will make a commitment to that which seems in their best self-interest, given their definition of their mission and their perception of their most vital role. A number of people interviewed were most excited about the potential of collaborative relationships with cablecasters and other "narrowcasters," who are able to focus on more targeted audiences, perhaps more appropriate for instructional services.

For example, Joe Lipton, manager of UC Cable Vision in New Jersey, sees great potential in a working relationship with Bergen Community College, noting:

> "We have a cable TV franchise, and are installing a studio on the college campus as well as starting an internship program. We're also involved in an interconnect from Essex County College with another company, Suburban Cablevision. Between the two of us, we have 1,000,000 homes wired, and we're growing fast."

The mutual advantage involved is that next fall, Lipton can give Phil Dolce at Bergen his subscriber list so Dolce can promote directly to the homes, letting those people know of the telecourses available through cable TV. At the same time, when Lipton wants to interest new customers, he can tell them that one of the advantages of UC Cable Vision is that they will be wired up to Bergen Community College's off-campus program. In the fall semester, according to Lipton, telecourses offered at Bergen will be promoted through UA Cablevision as an experimental effort to determine how many customers can be obtained.

Dave Bunting, associate director of non-traditional programs at Kirkwood, also advocates delivery modes other than open broadcast television. He is interested in the "public telecommunications library" concept, in which libraries of videotapes are made available to subscribers, perhaps through the auspices of a coordinating agency like the region's Central Educational Network. "If students can check out a tape and view it on their own time, it's much more flexible than dragging them out of bed to watch a telecourse at 6 a.m."

Jan Baltzer at Rio Salado echoes the sentiment: "Members of our new Consortium for Learning in Arizona through Instructional Media, a consortium of colleges, stations, and service agencies, are interested in closed circuit materials which can be modified for self-paced instruction and which can stand on their own."

She mentions that many libraries have purchased videotape recorders and cassettes so that they can offer community members nonformal adult learning opportunities based on television programs—for example, a discussion series based on the parenting course "Footsteps," led by graduate students from the universities. "Increasingly, the idea of each community having its own telecommunications center is a notion that is catching on, and that may be where the future of station-college collaborations will lie," she notes.

Ken Roberts, instructional designer at the college, feels that such a development has implications for production: "We need much more flexible and low-cost production, for small, isolated groups. It makes sense to have a lavish, high production course for English 101, and to offer it over open broadcast because all students must take it. But for the guy who wants to learn how to install a sprinkler in his home garden, there should be a cassette library of topics available in new neighborhood community centers—courses on selling your first home, on early childhood development, on microwave cooking, on what to do if your orange tree is dying. The same approach could be used to develop instructional materials for professional upgrading: basic skills, filing, shorthand, and then higher level courses as the person advances. Everything we need doesn't have to be highly produced."

Learner-centered Focus

The chosen definition, according to staff members, is "local support services foster involvement (personal contact by phone or mail) and feedback (grades, self-study quizzes)." One other option followed closely: "administrative arrangements designed for adult learner: information and recruitment materials easily available; simple procedures available for registering, taking exams, obtaining course credit, etc." These close rankings indicate that "learner-centered" is a term that connotes both personal and administrative support for the learner.

Terence Kelly, vice president for educational services, lists the various kinds of support services that are provided for Open College students at Miami-Dade: twenty-four hour phones for students who need tutorial help, faculty office hours for those with special problems, review sessions, phone-in radio programs, and "the heart of our system," the Response System with Variable Prescriptions. Support services provided to faculty are crucially important also, with four course coordinators to help with test development, print design, proofreading materials, developing the RSVP materials, and secretarial help.

Miami-Dade instructors Susan Wilson, Doug Andrews, Dorothy O'Connor, and Pete Diehl agree that what ties together all their work is the fact that the students can bend the materials to suit their own time. Many like to thrive on the independences and on the anonymity.

However, some faculty members are troubled by the fact that the student is remote. One would like to follow the British Open University model, with a weekend seminar to get things going, where they could focus on issues and interact with one another.

Student materials are well planned and prepared at Miami-Dade. The take-home packages are well organized, and receive constant revision, according to faculty observers.

One way in which the materials are not as learner-centered as faculty would like them to be has to do with the inflexibility of the television component. "Thirty half-hours is too much time and too expensive; we should do fewer programs and spend more time and money making them better," said one observer. "And we'd like to use mixed media like radio and audio-cassettes. One thing we try to do in that line is to have review tapes available on audio. They can check them out at the learning resource center, have them dubbed onto a blank tape, and review the material at home."

An additional learning support faculty would like to provide is an experimental section in which the remote learners can join a neighborhood learning support group or a telephone network. Dialogue is important, especially for the distance learner.

Jennifer Snell, teacher of "The Growing Years" and "Parent Effectiveness Training," gave these examples of local support services she provides at Kirkwood to foster involvement and to provide feedback:

- send out weekly quizzes and gave them points for merely trying;
- keep an individual file card on each student so I can "place" that student when we talk by phone;
- write them weekly letters, telling them the important points to look for in the reading and what they can skip. Try to reassure them so they won't be overwhelmed by the great load of technical information in the course;
- point out controversial viewpoints and give them alternative approaches so they won't think there is just one way to look at a question;
- tape the seminars and send them to the students who are in prison;
- make efforts, through letters and phone conversation, to overcome the impersonality inherent in the situation;
- present myself as a fellow learner who is also getting something out of the course (which is true).

Clearly, the faculty for the on-campus contact should be carefully chosen. A good on-campus instructor will keep office hours, will listen carefully to the phone-in questions, and will respond.

Also, as Dave Krohn at Kirkwood points out, feedback and communication are important for the teachers as well as the student. "Personal contact with students in the classroom is what I really enjoy, what teaching is all about to me," he says.

When local support services break down, life becomes particularly miserable for the distant learner, as the student at Bergen Community College points out:

> "Information on the course schedules is crucial. When I signed for 'The Growing Years,' we knew the dates it would be offered, but not the time of day. Luckily the Sunday time worked for me, but we should've known right away when we registered. Also, WNET-Channel 13 bumped the program two weeks in a row in December, so I had to run into the campus and view it in the library—and they also showed programs out of sequence. I panicked—and so for me, a lot of supposed time-saving element didn't work, because I couldn't count on the television. I was never notified of schedule changes."

Another student commented:

> "For me, the best thing was the letters from the instructor. They tied things together and added a personal touch. The seminars, on the other hand, weren't great. They were geared to the community and weren't that related to the course. I'd rather be bored by someone telling me something that I'm learning from them than engaging in pleasant interaction that doesn't help me learn what I need to know."

However, when carefully planned, community forums can play a vital role in supporting telecourses. Charles Thomas, professor of English at Bergen Community College, describes the way he uses a combination of community forums and the telecourse, "Arts Through the Humanities," to create a dialogue with the community:

> "The television programs are well-researched. For each of the art forms studied, they provide four perspectives: historical, formed analysis, biographical, and critical. I build a community seminar around each of these approaches. For example, in the unit on sculpture, we timed our community seminar to coincide with the reopening of the community art museum, which had been closed for improvements. My speakers were the museum manager, a painter, a sculptor, and an art critic. I presented the historical perspective. My goal at these community seminars is both to entertain the audience and to provide a practical, hands-on application on the concepts presented in the television program."

Many advocates of TV courses have attributed teachers' lukewarm attitudes toward the medium to laziness or fear, but the teachers interviewed at these sites are vitally concerned with the teaching-learning process, and to the importance of dialogue, feedback, and reinforcement.

Commitment of Leaders

The definition that most staff members felt best summed up "commitment of leaders" was "resources of time, staff, and money made available by station, college, and community leaders." They gave examples of the many ways, large and small, that leaders at various levels can make a positive difference with their support, or a negative difference without it.

Miami-Dade President Peter Masiko helped build Chicago's TV College in the 50's, and brought the know-how and enthusiasm he acquired through that experience to the founding of Miami-Dade Community College

At Miami-Dade, his goal was to create a campus that could meet the needs of growing numbers of students through technological means as well as through face-to-face classroom instruction. Technical assistants were employed to design television color studios so that productions of broadcast quality could be produced for external as well as internal use; students and staff members were trained to provide support services to faculty members in the use of audiovisual techniques. Masiko worked closely with his board of trustees, who included a former president of NBC, a stockholder who owned several television outlets, and a senior partner in a law firm who represented several television companies, in developing the program and facilities.

> "It takes a large-minded person, with good business expertise and a vision of the future, to really serve well on the board of this kind of a campus," says Masiko. "People who don't understand are reluctant to approve expenditures for large amounts of equipment; they're just not comfortable with spending, say, three million dollars for a new computer complex. You must have people in leadership roles who can do long-range planning, who can visualize the needs five to ten years from now. They must be willing to be on the cutting edge of the industry."

On the other hand, Joyce Elsner at Rio Salado feels that commitment to alternative delivery systems need not initially mean a great investment of time, staff, and resources.

> "The important thing is to get started," she says. "Appoint a half-time staff member. Find an existing consortium to give you advice. Give a faculty member 50% release time to learn the ropes of telecourse delivery, and set aside some funds for work-study students—whatever is the appropriate first step to get going. But be sure that your first course is a good course, so that you're off to a good start."

A problem in getting support from district leaders, according to Jan Baltzer, is that most don't understand distance learning. "They don't know how a television course provides less than a third of the total content, or that a fairly large support staff is needed to process student contacts. They need to understand that in telecourses, there are different roles for students, faculty, registrars and administrators. We need to inform them, but that takes time."

At Rio Salado, public statements of advocacy are seen as one way leaders can show their commitment to the enterprise. Baltzer notes:

> "We originally got some bad press, with concern about whether our part-time faculty were adequately credentialled. The faculty on other campuses saw us as responsible for the district's new 'hold the line' budget, even though the dollars that went into the establishment of Rio didn't come out of the salaries budget. At a time like that, when the new institution is vulnerable, strong statements of support from board members and high-placed administrators can make a big difference, both to staff morale and to public opinion."

At Kirkwood, television courses serve such a limited number of students that they have not yet had high visibility. Don Fuller, director of credit programs, feels that "benign neglect" is the best mode for an innovation like telecourses, so that it isn't seen as too big a threat to the regular activities of the campus. "If you make too much of it and promise the world, you'll get set up and attacked later on. Any innovative program flourishes best for the non-traditional learners anyway, and there's a danger in overselling it to the others."

According to Dave Bunting, Kirkwood's commitment to alternative media delivery systems and alternative learning strategies can be seen in a variety of ways on campus. Kirkwood has procured and produced thousands of videotapes which teach everything from simple skills to elaborate concepts. These are housed in a central video library which is connected to TV outlets in each classroom. Teachers or students can call up the desired tape and be able to see it seconds later. Faculty are encouraged to seek instructional improvement grants, and in many cases the administration has continued to support the innovation with institutional money once the initial grant is completed.

In the Washington consortium, staff members perceive that "the real commitment is from the people working their tails off locally." They mention the careful groundwork laid by Frank Price of the State Board for Community College Education, and Marlena Scordan, director of educational services for the Tacoma Public Television Station, Channel 13. "Their attention to political and operational problems, and their ability to enlist support from the deans, have helped us greatly," comments Rick Schutter, media coordinator.

In spite of the commitment at the staff level, Washington consortium members wonder if that is enough. "I feel the ground is slipping out from under us over here—we're losing Channel 13 and getting hassled about cost-effectiveness. We could do such a lot in the Seattle area, if we had better air time, but it may be a while before the state legislature looks at it seriously as a way to teach. They still see television as a toy," comments Schutter.

Dick Smith feels that in the Maryland colleges the commitment varies from campus to campus. He believes that for success, the president must be for it or neutral. "Nobody in the consortium thinks TV will solve all educational problems; they think it's a nice supplement. During lean times, when cutbacks are needed, it's a towel they are willing to throw in. They like our involvement in a nationally recognized consortium, but are worried about pulling students away from the main enrollments."

A number of telecourse teachers commented that they were reluctant to publicize telecourses on the regular campus because it would frighten and alienate the regular faculty. "I guess we play a leadership role in reassuring the faculty, convincing them we're not trying to replace them, being sure they get proper pay for their telecourse responsibilites, and encouraging them to build on what's offered in the telecourse," said Lou Orndorff of Catonsville Community College.

The importance of the leadership role of planning for nitty-gritty, operational details, so that delivery problems get taken care of up front, was stressed. Joyce Elsner gives this advice: "Develop a handbook that tells faculty how to help distance learners. Build longevity into your paperwork staff. Develop an operational guide for your hotline operators. Develop an orientation process for your student services staff, your community services division, and your faculty."

Anne Maganzini, teacher at Bergen, says: "It's the nitty-gritty that can drive you nuts. For example, I, as TV-teacher, am supposed to be available so that students who need help can call in during certain times. But the college changed the telephone system in the middle of the year, without warning. So the students couldn't call me, and if I wanted to call them it was in an office with five secretaries typing, so I could barely hear their problems over the phone." Another disconcerting oversight was the time the letters to her students were sent out third class mail—bulk rate—so that students didn't receive their notification of the monthly seminars until after the first one had already been held. "There I was, and no one showed up."

At Kirkwood, one teacher listed these activities as examples of the commitment of Dave Bunting, associate director of non-traditional studies:

- provided her with sample introductory letters to the student:
- helped her make room arrangements;
- brought texts to her seminar room, since the bookstore was closed evenings;
- sent out promotion material to day-care centers, pediatric hospitals, and others who might be interested in her course in developmental psychology;
- tracked down registration problems with the computer so that no student records got lost;
- provided all necessary course materials: teachers/guide, text, list of TV programs topics and times;
- arranged for clerical workers to address envelopes, grade objective exams.

Commitment of leaders, then, means different things to staff members at different levels of the organization, but all agree it is crucial in making the system work.

Governance

A difficulty in establishing effective station-college collaborations is to be found in the differing priorities, constraints, and missions of the two sets of institutions. For this reason, most staff members defined "governance" to mean "an initial agreement is reached on the purpose of the consortium; the differing expectations of various members are explored and a method for determining priorities is established."

The Tri-State Consortium, originally formed in 1973, had multiple purposes at first, and no clear way to resolve conflicts. According to several observers of the early history of Tri-State, a consortium trying to do too many things can end up doing nothing. In its current reincarnation, Tri-State's mission is to "bring together colleges, broadcasters, and publishers to share information and expertise," and it includes 27 postsecondary institutions, four public broadcasting stations, four cable companies, and a publishing house as members or cooperating members.

Within Tri-State, each collaborative relationship has a unique story of how it all got started and what makes it work. George McClellan feels that it's the hard work and good relations among three or four dedicated "behind the scenes" people that make their upstate New York consortium effective, rather than any formal organization chart or elaborate mission statement. The original impetus for collaboration came from a combination of factors: the willingness of WMHT's station-manager to underwrite initial costs for telecourses, the new interest of Dutchess Community College's president because of his investment in a translater to improve TV coverage in the area, the granting of a New York State Higher Education Act Grant to improve station-college relationships, the enthusiasm of Executive Director Dolce about what Tri-State could do to provide services to such distant areas as upstate New York, and the willingness of staff people to work long and hard on the communication, travel, and negotiation necessary to make it all work out.

Elizabeth Adams of New Jersey Public Television agrees, but adds, "You can learn a lot about a television station's priorities by looking at its organization chart and seeing who reports to whom. At NJPTV the director of programming and the director of instruction have equal clout, and that is not the case at many stations."

The importance of conferences and special educational meetings in establishing agreement on the purpose of the consortium cannot be underestimated. Both Elizabeth Adams of New Jersey Public Television and Dan McAuliffe of the Connecticut Regional Board emphasize the amount of time they have spent working with individuals and groups on the various campuses in their states, helping faculty and administrators understand the potential of television-supplemented courses for adult learners.

If Tri-State is complex and unwieldy, Maryland College of the Air may be at the other end of some kind of management-complexity continuum. The Maryland Center for Public Broadcasting has aired college credit courses in cooperation with public institutions of higher education since 1970, and the details of governance were originally worked out between Dick Smith of the Center and the campus coordinators of the original participating colleges: Catonsville, Essex, Baltimore County, and Prince George's Community Colleges. From the outset, the emphasis has been upon simplicity. Consortium representatives meet twice a year, six weeks before the semester begins, to discuss problems from the previous semester and to select courses to be offered or produced in the future. The person from each campus who has responsibility for administrative matters acts as consortium representative to these meetings including deans, library heads, learning resource center directors, audiovisual personnel, extension specialists, and teachers. "The less structure, the better," says Dick Smith. "I prefer to wheel and deal individually with each college, and structure would be a roadblock. This way I can make individual exceptions for individual cases."

According to Ned Glenn, director of Miami-Dade's Open College who is responsible for the administration of all courses for distance learners, the governance decision to place Open College operationally at the district level rather than to attach it to each of the four campuses was a significant one. "Here, we have a semi-autonomous position. There has been a willingness to finance our fits and starts and experiments, so that the Open College concept could really have a chance."

A voluntary group is the Television Task Force of the Iowa Coordinating Committee on Continuing Education of the Iowa Postsecondary Education Commission. This group acts as an advisory group to Director of Educational Services Sally Ihne of the Iowa Public Broadcasting Network (IPBN). Members of the Task Force represent two-year, four-year, public and private postsecondary institutions in Iowa who help to educate themselves and others about the role of television in the future of postsecondary education in Iowa. IPBN makes the final decision about which telecourses to offer over the network, guided by a policy statement for college credit and continuing education program service.

The Washington Community College Consortium is an example of a group that worked carefully and methodically, one step at a time, to establish agreement on the purpose and governance structure of their consortium, to explore the potential of telecourses for the adults in their community, and to prepare faculty and administrators for each aspect of the new concept. Their achievements exemplify what can be accomplished when support originates, not from "the top down," but "from the middle out."

The twenty-five originators met first in October, 1976, to discuss the viability of TV instruction. They were inspired by the successes of places like Coastline in California, Dallas, and Miami-Dade Community Colleges, and determined that they, too, could use television to meet the learning needs of citizens in their communities.

The group decided to engage in a number of strategies. They invited a representative of the State Board for Community College Education to join them, and they developed a study group to initiate a feasibility study, using the PBS production "Classic Theatre" as the target course. They planned and held a workshop on the concept to create excitement and to allow faculty to air their fears. They investigated the benefits of constituting themselves as a consortium in order to effect economics in leasing and promoting telecourses, to encourage the development of uniform policies and practices, and to facilitate the development of expertise in telecourse use.

Seventeen colleges joined the consortium for its experimental year. The consortium provided inservice training to instructors teaching the courses. Uniform publicity was provided through a common brochure listing the courses to be offered each quarter. The state's public broadcasting stations showed TV spots to publicize the courses.

The experiment was successful enough to be continued into a second year. According to Frank Price, participating colleges are working with the consortium to eliminate competition among themselves with regard to enrollment, fees, and credit, and are trying to resolve their own college concerns regarding awareness, implementation, faculty fears, and general support for televised instruction.

Rio Salado is a founding member of the newest consortium examined in this study, the Consortium for Learning in Arizona through Instructional Media (CLAIM). In the planning stages since November, 1978, CLAIM's governing constitution and bylaws are at last being signed by the various institutional representatives involved. Seed money for the consortium was provided by the Higher Education Act's Title I grant to Arizona State University, and participating institutions include stations, colleges, hospitals, libraries, prisons, and social agencies. Staff members at Rio have played a significant role in shaping the consortium for they are more experienced than most others in Arizona in offering telecourses.

The purpose of this new consortium is to share human and material resources in providing instructional experiences on health, education, law enforcement, and other topics to a variety of community agencies.

Supportive Context for Distance Learning

This factor was not given a high ranking. The definition most often chosen as important was "flexible policies for admissions, transfer of credits, assessment of prior learning, competence-based assessments." Many people interviewed said they had other, more immediate concerns about their consortiums at this point, and that the consortia were too new and tentative to be involved in broader policy concerns. They saw this factor as increasing in importance as consortia and other collaborative arrangements increase.

Several persons did mention policies that they believed caused problems. In New York, instructional television for K–12 students is strongly supported and regulated, but there is little support for adult education programming. Support at all levels is needed, but as staff members pointed out, it takes time to make changes.

One policy Maryland Center staff members feel is an advantage is that no distinction is made between television and regular courses for credit-granting or state reimbursement. All courses are transferrable to any college. It may be difficult sometimes to gain acceptance for a course—but credit is never a problem. On the other hand, a policy that is considered dysfunctional is one that has to do with prison inmates. No services are offered to this potential clientele because there is no allowance for payment of the services.

In Connecticut, television credits can be transferred to any community, state, or private college, and there is a cooperative reciprocal agreement with Rhode Island and Massachusetts. Part of McAuliffe's promotion effort is to inform constituent units about course availabilities so that the units can inject prior learning credits.

In Washington, the problem rests with the state legislature, the source of all community college dollars. Legislators want to be sure that there is no duplication and that there is no "ginning up" of enrollments. This attitude has resulted in a legislative restriction on advertising and an emphasis on course offerings which perform a utilitarian function. (For example, "Freehand Sketching" or "Home Gardening" could not be offered). The restriction on advertising is one of the biggest problems.

Rio Salado would benefit if Arizona legislators would revise the financial reimbursement system. Currently, the college is reimbursed money for each full-time student equivalent (FTSE). However, since so many of Rio's students are part-timers, staff members may in fact process four or five different persons, each taking one course, in order to get credit for one FTSE. The number of students served is thus much greater than they are given credit and reimbursement for, resulting in an underfunding of needed administrative services.

In the past, one of the biggest problems has been that of the Public Broadcasting System's delays in relaying information on the national program schedule until it was too late for colleges to promote them as courses to be offered for credit. Two favorite "bad examples" were "The Long Search" and "The Shakespeare Plays," which weren't announced until the colleges' deadline had long passed. Tri-State and other consortia, including AACJC's Mass Media Task Force, presented to PBS a carefully documented account of the starts and stops and changes they'd had to endure in the case of "The Long Search." The report is credited with influencing PBS's Adult Learner Task Force to recommend seven months' lead time for similar efforts in the future. Complaints from one or two stations make little impact, but when a consortium representing an entire region addresses a problem, it has some clout. "Until the suppliers have the same kinds of commitments that the stations and the institutions have, all we can do is sit around locally and commiserate with each other," commented one disgruntled participant. "The anarchy at PBS is reflected in our marketing problems. We get twice as many signups for courses we offer through commercial stations," commented another. "We can't put the puzzle together at the local level if we don't have all the pieces."

Stability

Stability was ranked very low on the list of major concerns of people interviewed. Clearly, the favored definition for "stability" was "sufficient funding to cover course lease fees, video-tape stock, air time, promotion costs, administrative/instructor staff time." It received an overall ranking of seventh in "importance" and eighth in "amount present at local site." Staff members of the recently formed Washington consortium ranked it third in importance, but at all other sites it was ranked sixth or lower.

Some of the comments made during the structured interviews about stability may prove enlightening. One member of the Maryland staff stated that the best situation for the colleges is when the station can offer telecourses to the public as a public service of the station and bear the costs themselves (as is the case in Maryland, Connecticut, Iowa, New Jersey). If that's not possible, then the college must pay for it through various funding approaches: through state reimbursement for full-time student equivalents, as is done at Rio Salado, or through the regular local budget. If the colleges cannot or will not, then the student must pay for it.

McAuliffe in Connecticut notes that if television is carried as a frill, it will be the first thing to go when budgets are tight. "Planning can't be for just a one-year trial; it takes two or three years to get the kinks worked out." Ned Glenn at Miami echoes the sentiment. "You shouldn't go into it to make money, but should justify it on the basis of providing an alternative educational delivery system."

George McClellan commented that stability is "not part of our upstate New York collaborations yet. If it weren't for the Higher Education Act Grant, the station would be paying for everything. But that's one of the advantages of being part of Tri-State: we get their services, and they get our broadcast area and promotion help." Margaret Dawes concurs, commenting that "joining Tri-State is the most beneficial thing we've done. It's only $400 to join for colleges, and no charge for broadcasters and publishers."

Jim Lyle, director of marketing at Miami-Dade, provides some good insights into ways colleges should consider different "cost models" in evaluating the pros and cons of alternatives.

First, for acquiring or developing telecourse materials, he feels consortia are the only realistic model, for through consortial arrangements, the cost can be shared among different institutions. Second, the best delivery model is one like Coast Community College District in California, where the community college has its own station license. Third, Lyle feels significant economies can be achieved if materials are designed for adaptation and modification. "There should be a way both credit and non-credit audiences can take advantage of the materials."

Linkages

The agreed upon definition for this factor was "linkages developed among colleges, among stations, and among consortia interested in television-centered materials development and use." This activity was rated low at the sites where operations are just getting started, but was emphasized by those who already have their own houses in order and who are now ready to lobby in the state and in the nation for the advancement of distance learning.

Several members of the Tri-State and Washington consortia, for example, perceived themselves to be still at the state of scrambling to decide what they will offer next semester and how it will look. Lobbying and expertise-sharing indicate higher levels of organizational commitment and more of an investment in long-range planning than they currently have.

Several persons pointed out that consortia can reinforce each other by sharing information on how to solve various problems. One need is education about what kind of learner they're likely to have.

> "We've had quite a few anxious women on the phone," says George McClellan. "It helps to know ahead what their concerns are likely to be, so you can train your hotline staff to give them good information and good support."

Another problem is that of helping faculty members understand their role. "Dee Brock from Dallas, Sally Beaty from the Southern California consortium, Tom Gripp from Coastline, Jim Lyle from Miami-Dade—they have helped a lot of us get started," comments one relative newcomer to the business. A third problem is educating administrators. "We brought Bernie Luskin from Coastline up to talk to our presidents, and he really helped them see the potential," says Frank Price from Washington. The producer-user workshops co-sponsored by Dallas, Coast, and University of Mid-America last summer gave many people information they needed as well. AACJC's Mass Media Task Force is another network which links producers and users.

One problem is in simply obtaining lists of consortia and how they may be contacted. One useful product for the field might be the development of a telecourse consortium directory. Another important need is to find out who is producing what programs, so that duplication and overlap can be avoided. This is particularly important in light of the Carnegie Commission's report, *The Public Trust*, which recommends set-aside funds of millions for programming and a portion of that for instructional television. "We need a centralized funding source for course development," comments Dan McAuliffe. "The price of production is skyrocketing; Coast spent one million on 'The Growing Years,' and who can afford that? We can't keep going to Mobil Oil."

Another concern mentioned is the lack of good solid research on the distance learner. Joint research efforts are a possible solution. "Community colleges aren't staffed, equipped, or funded to do primary research," comments Ned Glenn of Miami-Dade. "In our telecourse production efforts, we seem to have locked onto, and begun replicating, various models, without really inquiring into their effectiveness in the first place. We particularly need a theory and a set of models aimed at attracting minority populations—who are underrepresented in *any* model."

Glenn feels that Miami-Dade is basically a media-based institution for good strong, independent learners, but that the real advances will be made through taking a broad look at adult learners, where they are, how they learn, with media delivery systems merely one element.

Dan McAuliffe would like to see some kind of newsletter developed for distant learners nationwide, so they could realize that they are part of an "invisible university" and are not learning in isolation. This is another possible project for a consortial effort, and one that the College Entrance Examination Board's Future Directions for a Learning Society is considering initiating.

Summary

Eight factors which were believed to contribute to successful station-college relationships were considered by staff members at six different sites of successful consortia or station-college collaborations, and their responses indicated those factors which were indeed important as well as those that were less so.

The priorities make perfect sense. First, they tell us that instructional materials of excellent quality are needed if distance learning is to be a viable way to reach adult students. Broadcasters want to be sure that television will be used for what it can do well, and they don't want audience

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ratings to drop because of pedantic approaches. Academics want substance and rigor. Instructional designers want materials designed to enhance motivation, participation, persistence, and learning on the part of the viewer. Marketers want to be sure of a variety of uses, local and national.

Second, positive relations between stations and colleges are needed, for only within a climate of shared interest is the delivery system available. "Positive relations" are mainly the responsibility of the executives at the station and college levels.

Third, commitment of leaders at all levels is needed, leaders whose time, money, and resources must be behind the project for it to work. From statements of advocacy by policy-makers to hard work on the means of implementation, commitment of leaders is crucial.

Fourth, given good materials and support of station and college leaders, there is need for a system that focuses on the learner and his or her needs for personal and administrative support as a part of the teaching-learning process. Learning is ultimately a dialogue, and that dialogue must be part of the delivery system.

And fifth, there is a necessity for a good governance and management system so that this complex set of relationships can work and the implementation can be accomplished.

Other factors, less important, are a part of the total picture: financial stability, a positive context for distance learning, and good linkages between the parties involved. These are the factors that staff members involved in this study believe are significant in successful station-college collaborations.

Article 44

"Public Telecommunications Policies and Education's Options"

by

Frank W. Norwood

Introduction

Of the numberless public policy decisions which impact on schools and colleges, few are farther from the educator's focus of attention than those which shape communications policy. The school superintendent or the university chancellor may know that the Federal Communications Commission grants licenses to commercial and noncommercial radio and television stations, but it is not likely to occur to either that that has much to do with education or with education's use of technology. What may happen in Geneva, Switzerland, at the International Telecommunications Union's World Administrative Radio Conference, or how the work of CCIR Study Group 10/11B or a Joint Government/Industry Committee might open or close education's doors to a future full of satellites, computerized data bases, interactive cable television systems and the like are questions not even formulated.

With or without the participation of educators, decisions are made. With or without their knowledge of the war, the battles for communications policy advantage go on. And their results impact schools and colleges—and the options for off-campus learners as surely and as severely as if the superintendent and the chancellor understood the demonstrable fact that other parties are deciding their future for them.

Historical Perspective

The JCET is concerned with this interaction of communications policy and educational policy because it was born in response to a policy making crisis. In 1950, the Federal Communications Commission struggled with a dilemma. The post-war public success of the infant television medium had demonstrated that the demand by potential broadcasters and eager viewers for the new medium would require more stations than could be accommodated in the twelve Very High Frequency (VHF) channels that had been allocated to television broadcasting before World War II. Rather than a rich man's toy, limited to well-to-do urban areas, television promised to be a medium of news and entertainment for all.

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From Frank W. Norwood, "Public Telecommunications Policies and Education's Options," *Technology and Education: Policy, Implementation, Evaluation*, 1981, pp. 35–44. Reprinted by permission of Institute for Educational Leadership, Inc.

The Commission's problem was that of finding a way to create enough new channels for television broadcasting to make possible a variety of services for substantially all of the American public. Adding additional channels in the VHF spectrum was not possible. Other services already occupied those frequencies. The next available spectrum was in the untested Ultra High Frequencies (UHF) for which no television hardware had yet been developed, or even tested. To seek out the technical solutions to the problem, the FCC in 1948 called a halt to the construction of all new TV stations for what was to be a period of six months. But difficult technical problems sometimes refuse to conform to bureaucratic schedules. The six month "freeze" lasted four years.

For the one-hundred-nine "pre-freeze" stations which had television all to themselves from 1948–1952, it was a period of financial bonanza beyond the wildest dreams of avarice. For the educational community it was a fortuitous opportunity.

The very speed at which television was making a central place for itself in American life convinced a handful of alert educational leaders that something must be done to exploit TV's power for more than mass entertainment and the sale of consumer products, or the opportunity would be lost forever. After the passage of the 1934 Communications Act, the Congress had held an inquiry to determine whether 25 percent of the frequencies for AM radio broadcasting should be reserved for education, but the educational interests failed to press the case, and private sector broadcasters assured all concerned that school and college interests would always find a warm welcome and plenty of free air time from the commercial stations.

The following decade saw the number of noncommercial radio stations shrink from more than 300 to about thirty, and leaders like Arthur Adams, then president of the American Council on Education, were determined that the promise of television would not be lost.

The Joint Committee on Educational Television included the ACE, the National Association of State Universities and Land-Grant Colleges, the Association of State Universities, the National Education Association, the American Association of School Administrators, the Council of Chief State School Officers, and the National Association of Educational Broadcasters. Its mission was simple and direct: to persuade the Federal Communications Commission that when the freeze was ended, some of the channels should be set aside for education. When the Commission issued its Sixth Report and Order in 1952, the Table of Allocations which matched channels with cities and towns across the nation marked reserved for noncommercial TV, some 242 assignments—some in the VHF band, the rest in the new UHF spectrum.

National Educational Television, the Corporation for Public Broadcasting, the Public Broadcasting Service, Masterpiece Theatre, even Pledge Week, were then still years in the future, but that future could never have arrived without timely action in 1950. Television's appearance on the American scene was so arresting, and the history of educational radio such a stern warning that the need for educators' participation in communications policy making was sharp and clear. If the FCC's extended freeze had not provided the JCET with the time to make the case for educational television, the opportunity might well have passed without notice in academe.

Contemporary Significance

Now, as what has become "Public Television" begins to look at multiple services, including a separate instructionally-oriented PTV-3, and multiple channels of distribution for such programming, the significance of the communications policies urged by education thirty years ago becomes all the more apparent.

To an educational leadership besieged by pressing and immediate problems of increasing inflation and falling budgets, demands for conformity to new regulations and for making good on old promises, issues of communications policy, which may have their benefits far in the future, are easily pushed aside to deal with problems whose impacts will be felt tomorrow. But those who bear the mantle of leadership can hardly disdain the responsibilities of the statesmanship.

The growth curve of technology and electronic communications has risen sharply since 1950 and the protection of education's long term interests in communications cannot be left to an ad hoc group of Minutemen who can put down their lecture notes or annual conference plans and leap into the breach whenever a crisis in communications policy making occurs. That sober recognition came in the moment of victory in 1952, when the FCC did, indeed, reserve channels for educational television. The Joint Committee on Educational Television reconstituted itself as the Joint Council on Educational Television (later changing its title in recognition of the fact that the coming technology battles would be fought on a wider front than TV).

Satellites and cable television are technologies which, in 1950 were still beyond the purview of most educators and of most communications specialists. Sometimes it is not possible to await for the arrival of the technology, for a chance to "try it on for size," before developing communications policies. Policy decisions can prevent or promote the birth of new communications technology. Direct broadcasting satellites are a case in point.

From the viewpoint of the scientist and engineer, the eventual possibility of satellites capable of broadcasting television directly to individual homes has been obvious for twenty years. What was lacking was the requisite technology. There is a complementary relationship between the size and power of the satellite and the size and sensitivity of the associated receiving stations on earth. In the Sixties, our limited launch capability meant that the first satellites were small and weak, their earth stations very large and very expensive. But by the end of the decade, the know-how to build satellites powerful enough to beam programming directly to small, low-cost earth stations had been achieved.

In 1969, the Indian Space Research Organization and the U.S. National Aeronautics and Space Administration signed a Memorandum of Understanding, providing that the hardware for a direct television broadcasting experiment to 2,000 village schools in India would be included on ATS-6, an experimental NASA satellite scheduled for launch in the early 'Seventies. American educational interests, wanting to explore the possibility of similar experimentation at home found existing communications policy a major roadblock.

By international agreement, satellite transmissions are restricted to certain frequency bands where they will not interfere with existing terrestrial services. By special arrangement, the Indian SITE (Satellite Instructional Television Experiment) would take place in the UHF band. There are no UHF television broadcast stations operating in the Indian subcontinent. But here, in North America, the UHF band is in use in this country, Canada and Mexico, so UHF satellite broadcasting was ruled out—even on an experimental basis.

An Alternate Route

An "alternate route" was technically possible: the use of higher microwave frequencies in the band 2500–2690 MHz. Those frequencies are also in use, but by schools and colleges for the Instructional Television Fixed Service. Engineering calculations indicated that, under the proper constraints, satellite broadcasting could take place without interference to existing ITFS systems.

NASA was convinced, and the Department of Health, Education and Welfare was prepared to fund satellite experimentation—but existing international agreements on frequency allocation made no provision for space services in the 2500 MHz band. (Since radio waves know nothing about political borders, the allocation of pieces of spectrum to specific services is coordinated by the International Telecommunications Union, a UN agency whose agreements have the force of international treaties.)

Preparations had already begun for the ITU World Administrative Radio Conference on Space Telecommunications to be held in 1971. Unfortunately, the U.S. positions and proposals were already well developed . . . and they did not include satellite broadcasting in the ITFS band. Despite NASA's willingness to cooperate with educators in the U.S. as well as India, inclusion of an ATS-6 experiment at variance with proposed communications policy was hardly possible.

Education's fight often begins at home. Policy proposals for a World Administrative Radio Conference are developed by the Department of State with inputs from other parts of the Federal sector funneled through the Interdepartmental Radio Advisory Committee (IRAC). Participation by nongovernmental interests, public and private, go through the Federal Communications Commission, which typically established a Joint Government/Industry Committee (JC/IC). The Department of HEW's Office of Telecommunications Policy (now disbanded) and NASA worked through IRAC; the Corporation for Public Broadcasting and the JCET attempted to persuade the JC/IC and the Commission that a last minute turn-around in the U.S.'s agenda for the Space Telecommunications WARC was possible and desirable.

Influencing Policy

To influence technology policy, it is necessary to understand the technology. The first task was to convince the seven Federal Communications Commissioners that their own staff was wrong in its insistence that the educators were wrong in asserting that satellite broadcasting could take place without interfering with terrestrial ITFS systems. Fortunately, the necessary technical studies had been done within the aerospace industry. Commissioner H. Rex Lee and his staff studied the evidence and he became the educators' invaluable ally.

The result of the last minute FCC turn around was that the U.S. went to the World Administrative Radio Conference on Space Telecommunications proposing co-allocation of the 2500 MHz band to the Broadcasting Satellite Service. Thanks in no small measure to the presence of HEW's Dr. Albert L. Horley on the U.S. delegation, the proposal carried at the Geneva meeting, and the barriers of domestic and international communications policy were removed.

The immediate result was that the way was cleared for American satellite broadcasting experiments on NASA's ATS-6. Those experiments in the Rocky Mountains, Alaska, and the Appalachian states demonstrated for the first time that television transmission from space to small and inexpensive receivers, capable of operation by non-technical personnel could bring services to hitherto inaccessible educational and health care institutions. The Alaska and Appalachia experiments laid the groundwork for today's operational services. In Alaska, RCA's Satcom II satellite now provides telephone service to every Alaskan village, with a special line for emergency medical traffic. Many villages also get television by satellite, including programs for the schools, and the University of Alaska has extensive plans for extending its services by satellite. From the early ATS-6 experiments undertaken by the Appalachian Regional Commission has come the Appalachian Community Service Network, which is providing a daytime schedule of educational and instructional programming for all ages through the use of satellite and cable technology.

Our experimental use of the 2500 MHz band for satellite broadcasting was not followed up in this country. The Alaska and Appalachian operational systems use commercial satellites in the 3700–4200 MHz band. But the WARC allocation is world wide, and the Indian Space Research Organization will use the 2500 MHz band for its operational follow-on to the Site project (the Insat I satellites are already under construction), and the planned Arabsat includes educational television in the same band.

Implications

The connections between communications policy and education sometimes have their implications for the priorities and budgets of other agencies. Those who planned the ATS-6 experiments at 2500 MHz expected that ATS-6 would be followed by ATS-7, a still more advanced satellite which could have had satellite broadcasting for health and education as its primary mission. When, early in 1972, NASA trimmed its budget by gutting applications R&D, ATS-7, and the Applications Technology Satellites that were to follow it, were canceled.

A second opportunity for educational broadcasting from space presented itself in the Communications Technology Satellite, a joint U.S.-Canadian venture pioneering in yet another frequency band, 12 GHz. Still more powerful, CTS provided opportunities for more than two dozen experiments in health, education, and public service communications in this country and in Canada. But when CTS reached the end of its useful life, the U.S. experimenters once again found themselves without a satellite with which their earth stations were compatible. For the Canadian experimenters, things were different.

NASA is concerned with the needs of the public service community and the process of technology transfer, and has supported the Public Service Satellite Consortium, the Appalachian Community Service Network, and the Joint Council, but its prime responsibility is the development of new technology: Develop and demonstrate satellite broadcasting in the 2500 MHz band. Move on and do the same at the next "frequency frontier," 12 GHz. Now, NASA is looking toward the development of space communications in the 30/20 GHz band, with inviting possibilities for service to rural areas. NASA will welcome experiments in public service communications, but cannot be expected to take responsibility for seeking them out.

Canadian Organization

Canadian space communications, however, are under the direction of the cabinet-level Department of Communications which has a broader mandate. Having demonstrated on CTS the technical feasibility of satellite direct broadcasting to the villages of Canada's Far North, the Department of Communications sought a means by which an operational service could grow from such experimental beginnings. Canada's operational satellites are owned by a government-carrier partnership called Telesat Canada. The Department of Communications asked Telesat to include four 12 GHz channels on its Anik B satellite, offering to lease the channels for a minimum of four years, thus assuring Telesat a return on its investment.

The United States lacks an equivalent Federal mechanism for considering and advancing communications technology and policy according to some concept of the public interest which goes beyond mere technology development. Carter's Presidential Directive 47 charged both NASA and the National Telecommunications and Information Administration with responsibility for promoting communications in support of public services, but the division of responsibility is not clear . . . nor is the future of the NTIA.

U.S. Executive Branch Participation

The history of Executive Branch concern with communications policy is less than encouraging. Until the end of the Johnson administration, the Office of Telecommunications Management concerned itself only with the government's (ie, Defense, Coast Guard, Forest Service) use of the spectrum allocated to government uses (although the White House, itself, gave strong support to the Public Broadcasting Act). A presidental Task Force on Communications Policy recommended the establishment of a White House Office of Telecommunications Policy to formulate policy and to speak for the President. That recommendation came to fruition in the Nixon years, but OTP's threats to public broadcasters and to media critics of the White House gave it an unhealthy political odor.

The National Telecommunications and Information Administration was successor to the Nixon OTP and the creation of an early Carter promise to reduce government agencies, starting in the Executive Branch. The Executive Branch was reduced by moving OTP administratively, although not physically, into the Commerce Department. What, if any, shifts, changes, or deletions can be expected from the new Reagan administration remains to be seen. If education would protect its stake in the need for a communications policy focus, it must do what it can to be heard on the subject.

Court Actions

Sometimes, communications policy made by the Federal Communications Commissions can be unmade by the courts. As access to the broadcast television band for education required action in 1950, two decades later it was necessary to press education's case for access to cable television. The Commission's 1971 cable television rules recognized the important role the CATV could play in providing more than improved reception of local and distant television stations. The technology of cable is by its very nature local, and channels can be provided to serve a community or even a neighborhood. The Commission's 1971 rules put CATV operators on notice that all new systems serving more than 3500 homes should be capable of at least twenty channels and that dedicated channels would have to be provided for government, education, public access, and for lease to commercial interests.

A 1979 court challenge overturned the FCC's access channel requirements on the grounds that they go beyond the Commission's powers in the Communications Act. Not challenged, however, is the right of local governments when granting cable franchises, to incorporate free channels for education as a contractual condition. The rush for franchises in each of America's major cities is on, and in many other communities, franchises granted in the 1960's are up for renewal. If school administrators and university presidents are going to protect their future options to bring classes to homes and offices via cable, they will have to become informed participants in the battles at the local level.

And not only there. After several unsuccessful attempts to rewrite the Communications Act of 1934, the new session of Congress will see yet another proposal from the Senate Subcommittee on Communications. The starting point is expected to be last session's S. 2827, whose provisions on access channels were unclear, but thought by some to undercut even the city fathers' right to insist on cable channels for public services.

The Communication Policies Battles

Unfortunately, the battles for communications policies favorable to education are more constant than sporadic, and as the example of cable television demonstrates, eternal vigilance is the price of communications. Last Spring, the Commission issued a complex of inquiries and proposed rule makings which threaten education's long-standing frequency reservations for the Instructional Television Fixed Service. Having worked to open these 2500 MHz frequencies for satellite broadcasting for education only a few years ago, we are now in danger of losing them for multi-channel instructional television on the ground. The basic issue is that the Commission finds itself with a pressing demand for more channels for the technically similar Multipoint Distribution Service, currently enjoying a boom as a means of distributing pay television, and Commission staff is proposing to meet that demand by allowing commercial services into the ITFS band, a de facto end to reserving these frequencies for schools, colleges, and health care agencies.

On other fronts, the issues are not so clear cut. The Commission has instituted steps to foster the birth of a whole new class of television broadcasting stations of limited power. While the Commission's TV Table of Allocations (in which education got its reserved channels) specifies *a priori* which channels are available in which cities and towns, these new low power stations would be approved wherever it could be shown by the applicant that no interference to existing stations would result. How many such new "mini-stations" could be created in any given city or town, or in the U.S. as a whole, is impossible to predict. By the FCC's own estimate, perhaps thousands of low power stations will be born.

Low Power TV

For education, opportunities are broadened. Low power TV stations can be constructed for as little as $50,000 and minimal studio equipment (not meeting conventional broadcast standards) can be used for local programming. In fact, there is no requirement that the mini-station have facilities for local programs. As has been done in Alaska on an experimental basis, a small community can have its own PBS affiliate, rebroadcasting programs from the satellite. Small colleges—even schools—can get into educational and public television at suprisingly modest costs.

Such mini-stations will be permitted to do nothing but local programming or do no local programming at all. They can be commercial or noncommercial. They can carry pay TV. The Commission's proposed rules would give preference to minority applicants and to those who propose noncommercial services, but the "land rush" is already on. Local stations (including PTV stations) are prohibited from applying for low power operations in their own coverage areas, but the rules which limit any licensee to seven conventional TV stations do not apply to low power, while educators and minority groups contemplate the possible opportunities ahead, eager entrepreneurs are beseiging the Commission with applications: one, for example, proposes to own more than one hundred across the nation, a network of country and western television.

The questions are complex. Since there is no easy way to estimate how many low power stations can be accommodated, it is impossible to assess whether this spate of commercial interest is or is not closing education's future access. The 1950 strategy of asking for frequency reservations is simply inapplicable.

And watch the heavens! While our 1970 efforts secured us a band for satellite broadcasting at 2500 MHz (and reserved in this country by the FCC for educational and public service use), the near term possibilities for an operational satellite in that band seem remote.

Direct-To-Home Broadcasting

In the meantime, direct-to-home satellite broadcasting is being proposed as a commercial venture by the Satellite Television Corp., a subsidiary of the Comsat.

Proposed is a three-channel pay television service, but, as STC notes, the economics of DBS are such that the medium can be "to assemble an audience for programs which would not be economically viable undertakings for conventional TV broadcasters." Comsat surveyed more than 1300 community leaders and members of the general public and found evidence of a latent audience for—in addition to movies, sports, and Broadway shows—educational, college, medical and scientific courses; historical, biographical and natural science documentaries; and news, news analysis, news magazines, editorials and business and financial news.

Channel A of STC's proposed service would include movies, pop concerts, theater specials and family entertainment. Channel B, classic films, children's TV, variety, arts and culture and public affairs. Channel C would offer adult education, sports, and special interest programs.

The question of authorizing a direct broadcasting satellite service puts before the Federal Communications Commission a long list of difficult policy questions. The international agreements arrived at at the 1971 World Administrative Radio Conference clear away some—but not all—of the international issues. While frequencies for satellite broadcasting were established on a worldwide basis in 1971, the specifics of how those frequencies are to be used in the Americas is the agenda for a Regional Radio Conference in 1983.

What the Federal Communications Commission must now decide are such questions as: Should any American action wait on the RARC? What is the potential impact of satellite broadcasting on the viability of local television broadcasters? Would approval of a commercial DBS system presage or preclude the development of noncommercial direct broadcasting from satellites . . . and how would a noncommercial DBS service be paid for?

Summary

Which answers to those questions and a dozen more will build communications policies which preserve the greatest number of degrees of freedom for education's future needs?

The march of communications technology is inexorable—and at double time to boot. Each new development will create its own imperative for new communications policies. The members of the education community have only two choices: they can participate or they can leave the decisions to others.

What they cannot do is escape their consequences.

Article 45

"An Innovative Education Modality—The Satellite System"

by

Susan L. Gaudreau and Lea J. Perritt

Introduction

The instructional television approach is indeed innovative—broad in scope and considerably changed in quality since the beginning of "TV classes" approximately 20 years ago. The college "TV classes" which may be recalled from the 1960's only remotely resemble the state-of-the-art as it now exists. This expanded, nontraditional concept we include in the rubric of "education" now encompasses many facets of lifelong learning.

To clarify the position of the Appalachian Community Service Network, this paper will consider:

1. the history of the network;
2. the educational thrust of programming;
3. a preliminary profile of some of our viewers; and,
4. implications for the future of ACSN in the education field.

The History of the Network

The Appalachian Community Service Network (ACSN), a non-profit, community service network, headquartered in Washington, D.C., with broadcast facilities in Lexington, Kentucky, had its beginnings in 1971 as the Appalachian Education Satellite Project(AESP). Within the scope of the 13 Appalachian States, the AESP originally beamed teacher education courses a few hours a week via satellite to teachers at 45 community receiving sites located throughout this Appalachian region.

AESP was a joint experiment of the Appalachian Regional Commmission(ARC) and the National Institute of Education. The Appalachian Regional Commission was created by Congress in 1965, when Congress determined that Appalachia was a region in need of extensive economic

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From a paper presented at the 1981 Lifelong Learning Research Conference, College Park, Maryland, February 7, 1981, "An Innovative Education Modality—The Satellite System," 16 pp. Used by permission of Susan L. Gaudreau and Lea J. Perritt.

and educational development, and that the rural areas of Appalachia lagged behind the rest of the nation. Some of the data collected by the ARC showed that in Appalachia there was:

1. an illiteracy rate for persons aged 24–40 years that was about three times higher than the average for the U.S.;
2. a lack of career counseling or career information for students in these areas;
3. increasing educational demands by the states or professional groups relative to certification or recertification of professionals and paraprofessionals;
4. geographic isolation which prevented traditional education from being effective;
5. a need for retraining of adults due to changing career trends;
6. a need for more workers in the areas of health and child development;
7. a decline in reading achievement at the elementary and secondary levels;
8. utilization of short-term crisis types of educational interventions, instead of long-range educational planning.

The original goal of the AESP, according to the ARC, was to demonstrate the feasibility of a satellite education system on a small scale, broadcasting to a limited number of receiving sites. The AESP was actually part of a much larger project, the Health/Education Telecommunications(HET) experiment, designed in 1971 by the U.S. Department of Health, Education and Welfare and NASA. The HET experiment, sponsored by the National Institute of Education, focused on three underdeveloped, remote regions: Appalachia, the state of Alaska, and the Rocky Mountain area, with the plan being to test the feasibility of delivering education and health services via satellite. Within the Appalachian area, teacher in-service education was pinpointed as a primary need.

A logical question might be, "What did this satellite technology cost?" and perhaps, "How feasible is the satellite modality for training and disseminating information?" To address the satellite cost question, it should be noted that the ATS-6 satellite was a revolutionary device. It in effect reversed the functions of the satellite and earth stations, with the satellite having more of the capabilities previously contained in the earth stations. With the increase in the satellite's complexity and power, the cost of ground stations was dramatically reduced, from several million dollars to as little as $8,000.00.[1] This was a major cost breakthrough.

At the experimental level, however, AESP did not necessarily have cost-effectiveness as one of its goals. However, in reality, even on a small scale, if just 300 students are served at 15 sites, a nominal number, the per student cost of $2,070.37 is only slightly more than the cost of a comparable course taken at a major state university (e.g., the University of Kentucky figure is $1,694.00),[2] so that even in its experimental phase, the cost-per-student ratio, while not low, was reasonable in comparison to traditional educational modalities. When one considers actual operational costs instead of experimental costs, for a theoretical audience of 1200 and simultaneous administration of three courses, the figure can be reduced to about $350, or less than one-fourth of the on-campus cost. Note that in addition to satellite rental time, this includes development, production, and course delivery costs, with minimal reuse of materials.

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1. Bramble, W. J., Hensley, C. E., and Goldstein, D. "A Follow-Up Report on the Appalachian Education Satellite Project," *J. Educational Technology Systems*, Vol. 5(2), p. 82.

2. Bramble, W. J., Ausness, C. D., and Meetens, D. M. *Cost Estimation Model for Alternative Course Formats and Delivery Modes*. Technical Report #10, AESP, September, 1975. In Bramble, W. J., Hensley, C. E. and Goldstein, D., "A Follow-Up Report on the Appalachian Education Satellite Project," *J. Educational Technology Systems*, Vol. 5(2), 1976–77, p. 92.

Cost, while a commanding reason, was not the impetus of the early AESP planning. Originally the system was conceptualized because it was believed that satellite delivery could be the ideal medium to reach those in the remote areas of Appalachia with the information they required to perform their jobs effectively, as well as to address some of the other regional problems noted earlier, e.g., illiteracy rate. This education was to begin at the fundamental level—and this meant with the teachers—those who needed further education to meet certification requirements, those who wanted to keep current in their field, and those who wanted to help alleviate some of Appalachia's problems. It should be remembered that the last 15 years have brought many changes in educational theory, and innovative teaching methods have been essential to enable teachers to cope with such ideas as mainstreaming, teaching handicapped children, and the like.

Although this was the original thrust of AESP, when in September of 1979 the "project" became the Appalachian Community Service Network (ACSN), its focus expanded. The "new" ACSN received funding from several sources, the ARC as well as the National Institute of Education. Last July, the Department of Commerce announced the awarding of a $410,000 grant to ACSN by the National Telecommunications and Information Administration so that the network could continue expansion into national public service endeavors.[3]

In addition to money, however, a major technological change was necessary for real expansion to occur. The satellite system of the AESP, as noted earlier, was NASA's ATS-6 satellite, a revolutionary device in itself. However, ACSN required a more comprehensive system, and in 1979 when it acquired time on RCA's SATCOM 1 satellite, the network was able for the first time to expand beyond the boundaries of Appalachia and beam its signal nationwide. Thus, ACSN was able to grow along four dimensions;

1. *geographically*, moving from the limits of the 13 Appalachian states to include nationwide capabilities;
2. *conceptually*, from a few teacher education courses to include many facets of nonformal education;
3. *demographically*, to include broadcasts seen in the viewers' homes as well as receiver facilities in classroom sites; and,
4. *temporally*, from a few hours a week to 22½ hours a week, to now over sixty hours of ACSN programming.

Throughout its infancy as AESP, and until January of 1981, the network received assistance, in the form of land and facilities, including the broadcast facilities of UKTV, from the University of Kentucky. In January, ACSN moved facilities from the university. This brings us up-to-date historically on the evolution and growth of ACSN, with the exception of a few comments on growth as evidenced by the number of subscribers.

Approximately one-half million persons currently subscribe, and the prediction of Dr. Harold Morse, former executive director and founder of the network and its newly elected president, is that within the next few years, growth will be ". . . off the charts."[4] ACSN has been called the "fastest growing public service network in the nation."[5] The chairperson of the network's 17-

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[3] *Appalachian Community Service Network Program Guide*, Vol. 2, No 1, Fall 1980.

[4] *ACSN Preview*, Spring 1981.

[5] *Ibid.*

member board, Terry Sanford, president of Duke University and former North Carolina governor, recently commented, "There is nothing quite like ACSN in public broadcasting today. It could become a singular, powerful programming force in the field."[6]

While these technological, administrative and organization changes have been occurring, naturally there have been major changes in the direction of the programming. We now consider these kinds of advancements, and how they interface with changes in educational philosophy.

The Educational Thrust of Programming

The viewer of original AESP programming, which was primarily graduate teacher education courses, and later interactive teacher workshops, would scarcely recognize the network today. Now our viewers can choose from these offerings, to name just a few from the 64 hours of weekly ACSN programming:

1. *community service* offerings, such as a course in international cooking, or perhaps one in photography;
2. *college-level telecourses*, such as an undergraduate introductory biology course, or a graduate/undergraduate course studying the effects of alcohol abuse;
3. *professional development programming*, such as a course in increasing children's motivation to read and write, or perhaps one in "speed learning"; and,
4. *selected workshops*, such as the one on loss which was aired in November to help professionals and laypersons alike develop an awareness of death and learn coping strategies; and *teleconferences*, such as one for the National Parks and Conservation Association dealing with threats to the national park system, like pollution and vandalism, scheduled for March.

With programming such as this offered seven days a week, ACSN viewers have a virtual cornucopia of educational opportunities to choose from, some of which should be useful at all stages of their lives.

A Profile of our Viewers

This naturally leads us to the question "Who is the ACSN viewer?" We now know that the viewer has changed from the teacher residing in Appalachia, utilizing our programming at regional sites. Now the viewers are comprised of people from all walks of life, from many states across the nation as well as the Appalachian region.

A recent compilation of data from some of our viewers of courses last year supports this belief in the diversity of the "typical" ACSN viewer. We can consider separately those persons who have utilized our undergraduate courses and those who have participated in our graduate/continuing education courses, and then make some comparison.[7]

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6. *Ibid.*

7. Note that the telecourse packages developed by the major distributors, e.g., Coast District Community College and Dallas County Community College District, are designed so that undergraduate or graduate credit may be appropriate, depending on how the telecourse is handled by the local institution (most utilize them as undergraduate courses). ACSN typically refers to these courses as undergraduate to distinguish them from the graduate/continuing education courses which are supported by ACSN with a central instructor, live seminars, and usually the development of additional materials, such as study guides.

Undergraduate Course Viewers

Sixty-six percent (66%) of these viewers were female; 34 percent were male. The two major age groups represented were 25 and under (42%) and 26–35 years of age (37%), with 13 percent in the 36–45 range, seven percent in the 46–55 range, and one percent 56 years and over. The majority (54%) were "home" viewers; 46 percent viewed programming at an ACSN "classroom" site either on a "real time" or delayed tape basis. The majority (54%) had no children, although 16 percent had one child and 19 percent, two children. Sixty-four percent (64%) came from rural communities, 21 percent from suburban ones, and 15 percent from urban. Sixty-three percent were full-time workers, 15 percent were employed part-time, 13 percent were not employed and five percent were homemakers. The majority (58%) described their occupations as professional.

To summarize briefly, we can see emerging the picture of this viewer as a female, 35 years of age or younger, with no children. She lives in a rural community or perhaps a suburban one, and works full-time as a professional.

Now we will consider her educational background and requirements. Asked why they were enrolled in the course, one-quarter (25%) stated an interest in the subject, almost as many (24%) needed the course for a degree, and 19 percent wanted to upgrade employment skills. As for background, 36 percent were college graduates, 29 percent had some college, and 13 percent were high school graduates. Most (60%) had formal schooling sometime within the last year. Thirty-two percent (32%) were currently full-time college students, and almost as many (31%) were part-time college students. Interestingly enough, 79 percent had no previous telecourses, with 16 percent having taken one before, and four percent, two courses. The majority (66%) were registered for the courses for college credit, and 18 percent wanted CEU's (continuing education units),[8] with the remainder choosing other options.

This information further clarifies the picture of these viewers. It becomes obvious that this is indeed a dynamic group, interested in education for its own sake as well as for college or career reasons. Most are and have been actively involved in the pursuit of knowledge, many already college graduates or with some college. Most interesting to the network, perhaps, is the 79 percent figure for those who had not previously taken an ACSN telecourse. This indicates clearly that we are reaching new groups of people, and certainly making learning more accessible to more people . . . and probably contributing to the furtherance of lifelong learning for more and more different types of people.

Now we'll turn to another classification of viewers, to help round out the picture of the ACSN audience . . . those who are involved in the graduate/continuing education courses.

Graduate/Continuing Education Course Viewers

Information about these viewers was compiled from courses in several different areas, such as engineering, education, and nursing. Hence, the profiles are homogeneous in relation to the level of these courses, but heterogeneous in relation to the viewing audience. Two of the areas, limited for the purposes of this paper to 1979 and 1980 data, will be considered: engineering and nursing.

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[8] One CEU is awarded for every 10 contact hours of education.

Engineering

Participants in ACSN engineering offerings were primarily male (92%), with the principal age groups being 26–35 years old (46%), 25 or under (21%), and 36–45 years (18%). The overwhelming majority were "classroom" site viewers, although 29 percent viewed courses in their homes. Forty-eight percent (48%) came from rural communities, 30 percent from urban communities, and 23 percent from suburban communities. The majority (56%) were practicing engineers, including chemical, electrical, mechanical, civil, industrial, and other types.

Relative to their reasons for taking the courses, many (39%) expressed a general interest in the subject, 27 percent wished to upgrade their employment skills for their present jobs, and 22 percent were enrolled for career exploration purposes. As for background, most (54%) had bachelor's degrees, some (14%) had associate degrees and a few (9%), master's degrees. As seen before in the viewers of undergraduate telecourses, the majority (85%) had taken no previous telecourses, although 11 percent had. Generally, the viewers of the engineering courses were interested in continuing education credit of some type (71%), with the remainder interested in certificates of attendance (14%) or other types of credit (13%).

Nursing

Participants in ACSN nursing courses were predominantly female (95%), with 46 percent working in rural communities, 27 percent in urban communities, and 22 percent in suburban communities. The majority were RN's or LPN's (62%).

Relative to the reasons for taking the courses, the majority (75%) were interested in the particular course topic, while a few needed college (3%) or continuing education credit (7%), and a small number (1%) were fulfilling a work requirement. As for background, 23 percent were high school graduates, 22 percent were hospital school graduates, 14 percent had associate degrees, 14 percent had college degrees, and four percent had master's degrees. Unfortunately, information was not available on the number of previous telecourses the nurses had taken, or their age groups. Generally, the viewers of nursing courses registered for CEU's (52%), with 17 percent registered for undergraduate credit and 16 percent auditing (14 percent did not respond).

Both of these groups have been included here in some detail to highlight the diversity of the ACSN viewer, even within the graduate/continuing education course viewer rubric. Certainly with other types of offerings, such as undergraduate courses, workshops, seminars, or telecourses, there is a varied mixture of viewers—but probably nowhere is it so pronounced as in the graduate/continuing education courses. Based on needs assessment and further market research, this area will continue to expand, the undoubtedly expand more and more rapidly as the number of professional groups that require CEU's expands, and as more professionals seek knowledge for its own sake or to keep current in their fields.

It becomes apparent from just this small comparison of these two groups that there is little overlap. One group is predominantly male, one female. Substantial numbers of both groups expressed interest in the subject matter, although more of the engineering viewers were concerned about upgrading skills or exploring new careers. Education levels varied considerably between the two professional groups, although majorities of both groups were principally interested in receiving the same type of credit for participation—continuing education credit. As most educators and members of professional groups know, there has been in recent years a dramatic increase in the number of professionals whose occupations require some sort of lifelong, or continuing, education.

A rather dramatic example of this type of continuing education need can be seen in the case of the professional engineer. It has been reported that half of their working knowledge becomes outdated every ten years,[9] obviously affecting their ability to perform optimally. One consequence of this has been the striking increase in the number of states which are now mandating continuing education for engineers.

As noted above, factors such as these should broaden the scope of the network even further, considering the numerous different professional groups, as ACSN strives to help more and more people meet their educational needs.

Implications for the Future

One might ask now, "Where do we go from here?" This is probably a good time to explain the "why's" of how ACSN has gotten where it is and then to consider the future.

The development of programming was not founded on a pure experimental design, but was based upon field research, as educators have probably already concluded. The initial decision to focus on teacher education courses within Appalachia was primarily based upon a literature search of regional needs, as well as needs assessment within the area. At ACSN now, programming decisions evolve based upon a wide variety of factors, including:

1. literature searches, such as the ones which were done when the "old" AESP was being formulated, to pinpoint some broadbased needs;
2. a gathering of needs assessment information, such as surveying particular occupational groups, like engineers, to keep up-to-date on their professional educational requirements;
3. evaluation and research conducted on an on-going basis for all our supported courses, workshops, and seminars, by the Program Operations Center in Lexington on our present audiences, to determine how well we are meeting their needs, soliciting opinions, and getting suggestions for improvements or future offerings;
4. needs' surveys of particular target audiences, such as the members of the American Medical Association, to determine what they perceive as their membership's needs and interests;
5. solicitation of the opinions of our site monitors and cable operators, on such diverse things as technical quality and programming effectiveness and content; and,
6. research, carried on by the Program Operations Center in Lexington, and the Marketing Division of ACSN in Washington, D.C., both of whom gather information and solicit and listen to ideas from many different sources.

The above is just a small picture of what goes into our programming decisions presently. These strategies are methodical and comprehensive—certainly not haphazard or capricious. The thread that binds all of these efforts together is the concerted effort of all the ACSN staff to meet their audience's needs—to better serve them. This is where we are going in the future. This conceptualization, development, implementation and evaluation is an ongoing, active, and open-minded process.

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[9] Lee, Sammie, President, National Society for Professional Engineers, *Kentucky Educational Television Engineering Teleconference*, April 21, 1980.

We believe that we have just barely scratched the surface of what is possible with this amalgamation of technology and educational philosophy. ACSN's aim for the future is to further diversify and improve on what this blending can offer humanity within this broad definition of "education." It is our belief that the sum of these two parts—education and technology—can offer a much greater "whole"—if this project, and the evolved network, can continue to be approached in an open-minded and innovative manner by those who believe in the importance of lifelong learning.

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Article 46

"The National University Consortium— One Year Later"

by
Allen Hershfield

In September 1980 George Brown*, a disabled student, registered for a TV-assisted course in Systems Management offered by Linfield College using materials from the National University Consortium for Telecommunications in Teaching (NUC). Linfield was one of seven institutions to participate in the pilot year of the consortium, the country's first national effort to provide high quality bachelor's degree programs for Americans who cannot attend college full-time on campus. George had tried to attend college previously, but he had always had difficulty with registration and other campus procedures and had never finished his degree because of his disability. The National University Consortium offered him the opportunity he'd been waiting for: "I have been disabled for seven years and I have attempted school before. I have lost the feeling in my legs and . . . this has made it impossible for me to go full-time, so when I saw this advertised as being something I can do off campus, . . . I felt it was perfect for me. I am finding out that it is."

Mary Jones, a department store buyer with a good job but no room for advancement, took an NUC course at another member institution. Unable to leave her job because she needed the salary to support herself, Mary found that NUC courses met her needs as well: "I am an accessory buyer for a department store. We buy for five different stores. I travel . . . out of town quite a bit, and obviously the Consortium is great. . . . I am . . . scheduling my own time, and I can study even though I'm out of town, and that works out very nicely."

George and Mary are two of more then 800 students who enrolled in NUC courses during the consortium's pilot year beginning in September 1980. Launched by the Maryland Center for Public Broadcasting and the University of Maryland University College, with financial support from these two institutions and the Carnegie Corporation of New York, the consortium's goal is to create a nationwide system of colleges, universities, broadcasting stations, and cable systems *to work together to offer quality B.A. degree programs for highly motivated adult, part-time learners.*

The consortium began its pilot year with ten affiliated public broadcasting systems, two cable systems, and seven colleges and universities. The institutions, selected from approximately thirty applicants from all over the country to represent the diversity of American higher education, were

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From Allan Hershfield, "The National University Consortium—One Year Later," *Change*, vol. 13, no. 8, November/December 1981, pp. 43–45. Reprinted by permission of Helen Dwight Reid Educational Foundation.

*Names have been changed.

California State University-Dominguez Hills, Iona College in New York, Linfield College in Oregon, University of Maryland University College, The Pennsylvania State University, University of Tennessee at Chattanooga, and Southern Vermont College. Four new institutions—the University of San Francisco, Texas Technological University, Rhode Island College, and Wichita State University—were selected to participate in the spring 1981 semester.

Enrollments, estimated originally at fifteen students per course, averaged eighteen students per course during the first semester and twenty-three students per course during the second semester. Total enrollment in the spring semester was 540, a 44 percent increase over the first semester. Though these figures do not show the significant differences among the participants, they do demonstrate that, given "the right mix," the program can succeed and be economically viable. Of the nine institutions offering spring courses, six registered students at a rate at which revenues exceeded expenditures. One institution was close to break-even, another did well one semester but not the next, and the final school had poor enrollments both semesters.

This fall enrollments are up 42 percent over the first semester of 1980–81 and 17 percent over the second semester. Average enrollment is twenty four students per course. The Consortium has just begun a program of admitting new qualified institutions. Seattle Pacific University, Empire State College in New York, and the University of South Alabama have been admitted to full membership. Expressions of interest have been received from four additional institutions that are expected to join within the next few months.

The key to the success of the consortium so far has been the development of a model that builds on the strengths of the present structure of American higher education, provides for participation by member institutions, demands high standards, and is cost effective. The NUC system is adapted to the traditions of locally controlled institutions of higher education and public broadcasting stations. Each member of the consortium adopts one or more consortium courses as its own and determines the course's credit value, its place in the curriculum, the tuition, and the appropriate student services. Credits and degrees are awarded by each member institution, not by the consortium. Each member institution and station plays an active role in determining NUC policy, curriculum offerings, and operations, and faculty from member institutions participate in the development of new courses.

The courses, many of them adapted from the highly respected and successful British Open University (See *Change*, October 1980), which inspired the development of the consortium, meet the highest educational standards. Says one math professor of the materials, "I am very pleased with the quality of the materials. . . . This particular course is well done. It is excellent in every respect."

Adds a college president: "The feedback I have received . . . [from] three different faculty members . . . has been very positive."

Criteria for Success

The pilot year has given all of the consortium members valuable experience to build on and clues about the right mix of institutional, student, and economic factors. Evaluations and survey results from participating students, faculty, and administrators suggest that the following factors are important to establishing a successful program:

- *A high level of institutional commitment*, including an enthusiastic and interested faculty, a senior administrator who is well respected by the faculty and other administrators and who assumes complete responsibility for the NUC program, and whole-hearted support from professional staff who recruit and work with students.

- *A program into which NUC courses* can fit, such as an existing B.A. degree program in which part-time adults could satisfy all, or most, of any residency requirement, or a continuing education program for adults that includes counseling, financial aid, credit for prior learning, and off-campus delivery systems.
- *An effective public information program*—experience with promoting educational programs to the adult market.
- *An interested public broadcasting service with previous instructional broadcasting experience,* including a committed administrator who has a good relationship with the college and is dedicated to the program.

The Courses

A key to the success of the consortium's progress, of course, is the high quality of the curriculum itself. The British Open University set high standards for the consortium to follow. As Jane Craig said in the October 1980 *Change,* "It is an open admissions university that does not compromise academic standards, a technological system that delivers a thoroughly traditional education and a distance-learning institution that approximates on a mass scale the tutorial relationship of older British Universities."

Following this model but adapting the program to the structure of American higher education, the consortium has attempted to provide guided-study courses that are intellectually challenging, current in each discipline, and appropriate for highly motivated and disciplined students who are able to function effectively at the college level. Guided study is a learning system that uses structured reading and supplementary television programs. Students learn on their own by working with courses that "guide" them through each step of the learning process. Components of the NUC courses include:

Unit texts. The core of each course is the unit text or study guide, which takes the student through the course materials much as the conventional classroom lecture would. The unit text is "student-active" in that there is an on-going dialogue between the author and the student. The student becomes actively involved in the learning process through the self-assessment exercises found in every unit.

Set texts. Additional texts are a major part of each course. These are essentially the usual required readings for the traditional course, and are set in the sense that their inclusion in the learning process is absolutely necessary.

Syllabus. A detailed week-by-week student syllabus accompanies the course. This syllabus indicates clearly the reading for each particular week, both in the unit text and in the relevant set text, and indicates due dates for written assignments.

Student assessments. Student work is assessed in three different ways: nongraded self-assessment exercises; written graded assignments; and a final comprehensive written examination. While the self-assessment exercises are purely for the student's benefit and are *not* graded, regular written assignments are graded. The comprehensive proctored final examination generally consists of essay questions, in which there is some choice. While NUC provides sample assignments and examinations, the faculty of member institutions are responsible for determining how their students will be assessed.

Television broadcasts. These programs supplement the reading in the courses and are usually broadcast bi-weekly. (A few courses are television intensive; the programs are aired twice a week for fifteen weeks.) Many courses contain broadcast notes designed to enable the student to get the maximum out of each broadcast. The syllabus coordinates the television broadcasts with the week's reading. At some schools students may have the opportunity to view programs at an on- or off-campus learning center.

Faculty-student interaction. Each student has a tutor, a member of the institution's faculty, selected to work with him or her. Students keep in touch with their tutors in a variety of ways, according to differing needs and their institution's procedures. Tutors respond to written assignments with detailed evaluation. At many colleges and universities students may attend optional discussion sessions or required classes, or they may schedule regular appointments with their tutors.

Most NUC courses are interdisciplinary in three areas of study: Technology and Management, Behavioral and Social Sciences, and Humanities. Five different courses, three per term, were offered in the first and second terms of the pilot year: Systems Management (9 credits); The Early Roman Empire and the Rise of Christianity (9 credits); Introduction to Philosophy (3 credits); Introduction to Mathematics (3 credits); and Exploring Language: Thinking, Writing, Communicating (6 credits).

Beginning this year, the consortium plans to provide five courses per term to its members. In the fall, institutions can offer Exploring Language: Thinking, Writing and Communicating (6 credits); Systems Management (9 credits); People and Organizations (9 credits); Social Psychology (9 credits), and Introduction to Philosophy (3 credits). In the spring, Introduction to Humanities (9 credits); Systems Performance (9 credits); People and Organizations (9 credits); Exploring Language (6 credits); and Social Psychology (9 credits) will be available.

Each participating college or university receives a full set of course materials for each course in advance of the broadcast date for the first television program. The courses are then reviewed by the appropriate faculty committees at each school and adapted and modified by each institution according to the needs of their students.

Those courses adapted from the British Open University materials are intellectually very demanding and require fifteen to twenty hours of study per week. Thus, the consortium suggests to its member institutions that nine credits (an amount of credit equivalent to that earned by British students) be awarded for each of these British courses.

Over a six-year period, then, the consortium will have provided a sufficient number and variety of high-quality courses at appropriate levels to permit member institutions to award B.A. degrees to students enrolled in NUC courses.

Program Funding

While generous support from the Carnegie Corporation, supplemented by substantial contributions of personnel and other resources from the University of Maryland University College and the Maryland Center for Public Broadcasting have supported much of the initial development, revenues following the pilot year will come primarily from membership fees. College and university members will pay a $10,000 annual membership fee, plus $35 per student enrolled in each course. In addition to supporting the general operations of the consortium, these funds will also enable NUC to produce a limited number of completely American courses and to engage in course coproduction with the British Open University.

Institutions not enrolling a sufficient number of students to generate the $10,000 annual fee may have that fee reduced to as low as $5,000. During the first year of membership, an institution may choose a contact-and-development-year membership for $3,000. During this introductory year, the consortium permits the institution to offer the full set of courses at this reduced fee. If the college or university were to offer all ten courses during this initial year of membership, the cost per course would be $300, plus $35 per student. This low initial year membership fee should permit interested universities and colleges to earn sufficient revenue so they will be able to pay the regular annual fee in their second year of membership.

Participating public broadcasting stations pay no fees and receive $10 from the $35 per-student fee for each student enrolled through the college or university with which it is paired. An additional $10 (from this fee) will be paid to the British Open University. The remaining $15 of the per-student fee will be placed in a consortium course development and adaptation fund.

Consortium Administration

The work of the consortium is guided by a board of directors and an advisory council. There are three members on the board: Dr. Clark Kerr; Dr. T. Benjamin Massey, chancellor of the University of Maryland University College; and Dr. Frederick Breitenfeld, Jr., executive director of the Maryland Center for Public Broadcasting. In the fall of 1982, member institutions will elect the first of five additional members of the board of directors.

The advisory council was appointed to involve consortium members in curriculum, course selection, and operational decision making. The members include Dr. Richard Fehnel, dean, Continuing Education and Off-Campus Programs, Linfield College; Marlowe Froke, director, Media and Learning Resources, Continuing Education, The Pennsylvania State University; Dr. Gerald Hursh-Cesar, acting director of research, International Communication Agency; Philip Wesley, dean, Educational Resources, California State University, Dominguez Hills; Dr. Elizabeth Young, president, Public Service Satellite Consortium; and Dr. James Zigerell, director, Task Force on Uses of Mass Media, American Association for Community and Junior Colleges.

The pilot year was envisioned as the first phase of a four-year plan. At the end of the four-year period, NUC was expected to be composed of forty television stations and thirty-five institutions of higher education and to be financially self-sustaining.

The program of the consortium to date suggests that both institutional participation and enrollment projections may be exceeded. Further, comments from those who have participated during this first year have been overwhelmingly supportive. Said the president of Iona College, John G. Driscoll, "We joined the Consortium as a pilot member principally because we were convinced that the materials developed by the Consortium would allow Iona College an opportunity to provide its adult, non-traditional students with an opportunity for demanding, well-supported independent study and would give us a good model on which to base the College's efforts to serve new adult populations. Our experience since that time has convinced us that our original decision was a wise one, and we are committed to stay in the consortium next year."

Linfield College president Charles Walker adds, "Enthusiasm comes from the acceptance of the NUC courses by 1) working adults who were already matriculated in our off-campus degree program (about 50 percent of the NUC enrollment came from this group), 2) the new students recruited to our program *because* of the NUC courses, 3) the faculty who are teaching the NUC courses (initially skeptical—now strongly supportive because of the quality of the NUC materials), and 4) other members of the Linfield community who are pleased with the increased visibility it has given our college, and the added dimension in our delivery capability."

Article 47

"The Cable Television Rush: How to Stake Your Claim"

by

Cecil Groves, Susan Reid and Ron Brey

Prospecting for cable franchises is the "gold rush" of the 1980s, and if your city is negotiating or renewing a franchise contract, your college must be ready to stake its claim. Franchise contracts last from 10 to 20 years, and if your claims are not written into that agreement, you may find yourself up the creek of gold without a pan.

Since 1975 and the enormous success of Home Box Office movies via satellite communication, the cable television industry has burgeoned. Companies have rushed to seal franchise contracts for every major city and market area. In recent franchise negotiations, companies have been willing to promise almost anything to secure the franchise because they and their investors are betting that cable television will develop into a communications medium that will soon be as important in everyone's life as the telephone is today.

Cable programming reaches approximately 21 percent of American households and this number is expected to triple by the end of the decade as the companies now vying for franchises begin delivering on their promises. The potential for educational courses and services through cable television is enormous and will grow as the cable market expands. This potential service offers numerous benefits to communities and to colleges, especially community colleges already committed to serving the needs of their area. Advantages for both communities and colleges include:

- *Cable television can reach new students.* In a 1980 study of Dallas, Texas, area residents,* approximately 25 percent said they would participate in education by television. This is seven percent more than were taking courses at colleges in the area, including those taking adult education courses. In addition to the people who find it impossible to attend classes—prisoners, elderly citizens, and mothers of young children—the study points out that there are people too busy to drive to class who will take a course when it is delivered to their living rooms. Also, television courses can be fit into a person's complex and changing job and home schedules.

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Susan Reid, Director of Information Services, Austin Community College.
Ron Brey, Instructor, Austin Community College.

From Cecil Groves, Susan Reid, and Ron Brey, "The Cable Television Rush: How to Stake Your Claim," Monograph No. 4, Austin, Texas, pp. 1–14. Used with permission by Combase/Austin Community College.

*Welch, Joe L. and Savitz, Jeffrey. *Educational Uses of Cable Television: A Marketing Study Approach.* The Association for Graduate Education and Research for North Texas under a grant #4B–03–90091 from the National Telecommunications and Information Administration, Department of Commerce, © 1980.

- *Cable television can alleviate space problems.* Colleges that have students crowded together in classrooms or colleges that have been forced to lease additional space will find that cable delivery of courses can offer savings in operating expenses. In addition, colleges that have a dearth of parking space have probably been losing students who could not handle the transportation problems. Cable television can allow you to serve these students.
- *Cable television can allow the college to give extra attention to special students.* Through additional lectures and television exercises, cable television can provide both remedial help for students who need additional background information and advanced materials to attract gifted students.
- *Through cable television, general information about the college can be disseminated.* It is difficult, particularly in community colleges where students come to the campus at different hours, to keep everyone informed of college policies, deadlines, and events. Student orientation and assemblies can be delivered by cable. Even more important registration can also be done through cable television if the system has two-way interactive capability.
- *Cable can make your college and its services known to the whole community.* Non-credit college functions such as forums, guest speakers, concerts, board meetings, and graduation exercises can be telecast as a service to the community. These telecasts can be more effective in letting people know what your college does than any number of press releases.
- *Cable can be used by the college for data processing, security monitoring, and environmental monitoring and control.* An institutional loop will provide the college with the capability of transmitting and receiving video signals and computer data via cable within the institution and to and from any other institution on the loop.

Preparing to Negotiate for Cable Access

To take advantage of the opportunities offered by cable television, your college must be prepared to act immediately when the cable franchise prospectors come to your community. If you take the following steps, you should be able to negotiate to get what your college wants and can use from the cable company.

STEP 1: Inform everyone in authority that your college wants to be a part of the cable franchise agreement. Send a letter stating your interest to the mayor, all council members, and to all elected city officials in your entire metropolitan area.

STEP 2: Determine who will speak for the college, and avoid multiple contacts in the institution. In order to avoid inappropriate contacts, conflicts of interest, and misrepresentation, you can institute a code of ethics for personnel.

STEP 3: Inform your governing board of the advantages that can accrue to the college through participation in cable television, and keep the board informed of the negotiations at all times.

STEP 4: Identify other relevant social and political leaders and begin working with them. Learn what the needs and issues of all other groups involved in the franchising process are. Close communication can be very beneficial.

STEP 5: Obtain a list of cable companies developing proposals, and communicate equally with all potential cable firms by sending copies of letters, requests, and documents to all companies. Explain the services your institution can provide the cable company, such as sites for access studios and programming. There may be significant trade-offs.

STEP 6: Learn the franchise provisions of agreements made with cities and/or colleges similar to yours. Information of recent franchise contracts is available through the National Federation of Local Cable Programmers.*

STEP 7: Consider forming an educational consortium or utilizing an existing consortium for added clout in negotiating provisions of the franchise. Other post-secondary educational institutions should be included in the consortium. Secondary schools, cultural, medical, and governmental institutions may also be included. Each institution must carefully determine the activities it does and does not want to develop in tandem with other consortium members. After the franchise has been established, the consortium can then be used for cooperative scheduling of dedicated channels, as a recipient of grant money, and as a participant in the periodic review of the performance of the cable company. Participation in a consortium is particularly beneficial to small institutions.

Following the steps just enumerated will provide your college with the organizational and political base from which you can negotiate for specific provisions you want addressed in the franchise agreement. It will be necessary for your institution to analyze carefully what uses it will make of the cable system over the life of the agreement. If some capability or provision is not included in the initial franchise, you probably will not be able to introduce it while this agreement is in effect. Ask for all that you will use. However, keep in mind that the franchise in all likelihood will contain a "use it or lose it" provision. Dedicated channels will revert back to the control of the cable company if you are not able to use them within a reasonable time.

What Your College Should Request

1) The single most important item to be included in the franchise is the dedication of channels for educational use. The minimum number of dedicated channels is one channel for kindergarten through high school and an additional channel for post-secondary use. The number of channels dedicated to post-secondary use will depend on the number of colleges and universities, their enrollment, and the population of the area served. Dedicated channels should be provided at no cost to the institutions, and they should be available to cable subscribers on the lowest cost service tier.

2) The next item to be secured for the college is the right to contract for channels that have both interactive and addressable capabilities. These features should be available to the college on a net cost basis, and the college should have priority over commercial users. Having interactive capability—the cable not only goes to the subscriber, but subscribers can send information back to the cable system by using a small calculator-type keyboard or a video display terminal—will make it possible for students to use computer assisted instruction, to do video library research, and to take pre-tests and to get feedback at home. As noted in Austin Community College's *Report of the Task Force on Cable Television:*

> "CAI is becoming an increasingly important educational tool for students with specific learning problems or academic deficiencies. Many colleges have extensive CAI programs which successfully aid student learning by providing individualized instructional programs. It is possible to extend such activities into each student's home via a two-way interactive cable system. . . . CAI is especially advantageous for many reading, writing, and math skills courses. In these courses, students respond to questions and receive explanations for incorrect answers to sample test questions. This procedure is practiced until students master the material. Such learning experiences cannot be obtained from textbooks, and is a particularly effective learning process due to the immediate feedback and the inherent interest of individualized student interaction with computers."

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*The address is: National Federation of Local Cable Programmers, 3700 Far Hills Avenue, Kettering, Ohio 45419.

The addressable capability refers to the feature that every cable subscriber who buys the addressable service has a unique address that the cable company's computer can scan every few seconds. The computer can note if the subscriber is tuned into a specific program and can bill the subscriber for watching that program. Having the addressable capability will make it possible for a college to offer certain types of continuing education courses which do not require a text or any on-campus activity. Students will not have to enroll in advance for these courses, but can simply decide whether or not to watch the course/program on their television sets. The college is reimbursed (through the cable company's billing and collection system) by those who choose to watch the course/program.

3) Next in importance is one free drop of the cable servicing consumers at each college site. The sites should be listed in the franchise agreement. If it is the college's policy to bury utility lines, then the franchise agreement should specify that the drop must be buried. The college may be required to accept the cost of wiring its buildings for cable reception and transmission.

4) The fourth item to be secured is an institutional cable loop to serve post-secondary institutions, governmental facilities, and other large institutions. This institutional loop is in addition to the loop that serves cable subscribers. The franchise should state minimum number of downstream and upstream channels to be provided. (Upstream and downstream refer to the direction an electric signal is traveling through the system.) The location of each site should also be included in the franchise agreement with a description of the system's capabilities at each site and a provision stating when the work should be completed by the cable company to bring each site online. The channels in the institutional loop should be provided at no cost.

The institutional loop provides the college with the capability of transmitting and receiving video signals and computer data via cable within the institution and to or from any other institution on the loop. It can be used for data processing, security monitoring, and environmental monitoring and control.

5) Negotiations for funding for video production capability are extremely important, but are complex. The college should request the equipment that is needed initially to start a central video production studio, mini-studios, and to provide a mobile van. This includes both production equipment and the equipment necessary to disseminate the programs. As an example of specific equipment that may be requested, Austin Community College's equipment list appears in the Appendices, pages 28, 20, and 31 [see original document].

In addition, the college should request annual funds from the cable company for equipment, maintenance, and staffing. The amount of annual funds to be provided by the company should be specified in the franchise agreement.

It is possible, even probable, that the cable company will make funding of equipment and annual funding for staff, maintenance, and additional equipment contingent upon the college providing services to the public. These services might include allowing individuals and groups to use production equipment both within and outside the production studio, maintaining the equipment and scheduling its use, teaching the public how to produce a program and use the video equipment, and miscellaneous services such as editing the tapes.

The college will have to weigh the benefit to the institution of having its production studio and staff fully or partially funded by the cable company against the problems that may arise in providing access to the public. Having outsiders use the production facilities can introduce problems in administration, security, and copyright. Questions concerning an institution's liability for programs produced and cablecast from its studios by outside users have not been resolved.

Additional Franchise Provisions

The college will also have an interest in seeing that certain general provisions are included in the city's request for proposals (RFP) from cable companies and subsequently are provided in the franchise agreement. These provisions are:

1) A citizens's advisory board should be provided with well-defined responsibilities and authority. One or more members of the board should represent educational institutions. The number of educational representatives will depend on the relative importance of education in the community.
2) The board should be charged, among other duties, with reviewing the cable company's performance every three to five years. The board should evaluate whether the cable company has met its franchise agreements, whether the cable company is using the latest available technology, and whether the community and educational institutions have been using their dedicated channels and funding properly.
3) Penalties should be specified if the cable company does not meet any part of the agreement.
4) A definite date should be included by which the cable company will have interconnected its public access and educational channels.
5) The construction schedule and activation dates for all aspects of the system should be specified.
6) Additional channels should be made available, up to a maximum percentage of all channels on the system, as access channels become fully utilized. Full utilization is usually considered to be two-thirds to three-fourths of the time between 7 a.m. and 11 p.m.

Cable Costs to Be Borne by the College

Although the cable company can be required under the franchise agreement to provide dedicated channels, production studios, equipment, and an institutional loop, instituting and maintaining cable television courses and services will involve operating expenses for your college. These expenses can be broken down into the following areas:

Administrative costs—Planning, development, and evaluation of the college's use of cable television must come from the college's operating budget.

Personnel—This includes personnel to produce additional video and print materials to supplement courses and faculty to evaluate students' learning.

Curriculum materials—This includes lease or purchase of instructional television programming and additional video and print materials produced at the college.

Equipment and supplies—Video tape players and large quantities of video tape will be needed plus additional production equipment not covered in the franchise agreement.

Facilities—Wiring of selected buildings will be needed as well as modifications or additions to the college plant to accommodate studios and interactive classrooms.

Continuing Concerns

Once you have successfully staked your claim to be a part of the new world of electronic communication, there will be a host of problems to solve and educational issues to monitor. The issues that will require your immediate attention are: student learning; the quality of television courses; verification of enrollment and the collection of tuition for courses; state and federal cable television regulations; and the financial impact of this new medium on your college.

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Article 48

"Consortia—A Growing Trend in Educational Programming"

by
James Zigerell

There was a time when a consortium was something that I associated only with such matters as international banking and loans to countries with faltering economies. But nowadays, it is a term heard frequently in higher education circles.

Two-year and four-year colleges join together in consortia (or consortiums, if you prefer) for a variety of reasons. The more common ones are: 1) to share resources, 2) to make processes and procedures that are prohibitively expensive for a single institution economically feasible because of a broader base, and, as is happening frequently, 3) to encourage more effective design and use of telecommunications-based instructional materials which, of course, can be costly to acquire.

It was discovered early on, for example, that sophisticated computer services could be shared by institutions with no loss of efficiency, and with great cost benefits to the partners. Likewise, within the last few years, colleges and universities—the two-year colleges in particular—have learned that TV-based instructional materials can be acquired, utilized, and designed effectively on a consortial basis. These partnerships enable institutions that could not previously afford it to become involved in TV-based instruction because of cost-sharing. The partners benefit by economy of scale—a factor that makes much cooperative human activity attractive.

What Is a Consortium?

Community college telecommunications consortia are flourishing all over the country. They are simply associations of two or more members who have a common interest in employing telecommunications-based learning materials.

Some are locally or regionally based. The public community colleges of the States of Florida and Washington, for example, have organized themselves into consortia that negotiate for the acquisition and broadcast of television and radio courses by PTV stations and cable systems on a statewide basis.

The Eastern Educational Consortium (EEC), one of the largest of the regional organizations, numbers some 40 or so two- and four-year colleges and PTV stations in New Jersey, New

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York, Pennsylvania, Connecticut, and Delaware. It presents a range of general education and vocational/technical courses via open broadcast and cable.

The California community colleges, as might be expected, have formed several active and successful consortia for telecourse users in the southern and northern parts of the State, as well as the Bay area. Given the heavy concentration of broadcast outlets in greater Los Angeles, and the fact that enrollment in TV and radio courses is free, it is not surprising that the California consortia are large and thriving, yet many of the member institutions are in non-urban areas and have relatively small student populations. Distributing acquisition costs across such a broad base enables colleges to offer TV courses to off-campus students at relatively low cost.

What Does a Consortium Do?

As already indicated, two-year-college consortia exist in all parts of the country, in regions as sparsely populated as rural southern Illinois as well as in the more populous sections. Most were established to promote use of telecourses (in particular) by serving as agencies whereby course use rights can be secured on more advantageous terms than if a single college alone were to negotiate for them.

Some consortia are formally chartered as not-for-profit organizations and are controlled by formal governance procedures. Others operate informally, with services supplied, courtesy of one of the members. Most rely for support on annual dues or on some kind of assessment of the members.

Consortia that are well organized and reasonably well supported try to provide their members with continuing help and guidance in the utilization of media-based materials. This service becomes increasingly important as more post-secondary institutions turn to TV to reach and recruit new students in a non-growth period for the traditional student population.

Some consortia—EEC and the California groups are good examples—publish newsletters and sponsor forums and workshops on ITV utilization. Some have successfully applied for federal grants to support projects that encourage and promote wider and more effective uses and applications of instructional telecommunications. A recent example is the Bay Area Consortium in California which currently has a FIPSE (Fund for the Improvement of Post-Secondary Education) grant.

Also, the really active ITV consortia are increasingly turning their attention to encouraging and sponsoring projects that orient on-campus faculties to the whole field of technology-based instruction. Teachers assigned to provide supportive instruction and counseling for off-campus students enrolled in TV and radio courses must assume roles that they find unfamiliar and uncomfortable. Yet the key to the students' success, and to the success of the distance-learning program in general, is such faculty involvement. Many institutions are joining consortia in the hope of finding just such professional development projects.

Are There National Consortia?

National, i.e., nationally based, consortia are now being formed in both the two- and four-year college sectors. I am part-time director of what is undoubtedly the largest such association, the Instructional Telecommunications Consortium (ITC) of the American Association of Community and Junior Colleges (AACJC), which has its headquarters in Washington, D.C., and has a membership of about 1,000 of the nation's 1,200 community, technical, and junior colleges.

ITC Members

When this article was written, members of the Instructional Telecommunications Consortium of the AACJC were:

Austin Community College, Texas
Connecticut Regional Community Colleges, Connecticut
Dallas County Community College District, Texas
Florida Community College TV Consortium, Florida
Los Angeles Community College District, California
Maricopa County Community College District, Arizona
Miami-Dade Community College District, Florida
Bay Area Community College TV Consortium, California
Bergen County Community College, New Jersey
Mercer Community College, New Jersey
Bunker Hill Community College, Massachusetts
City Colleges of Chicago, Illinois
Coast Community Colleges, California
Minneapolis Community College, Minnesota
Northern Virginia Community College, Virginia
Palomar Community College, California
Puerto Rico Junior College, Puerto Rico
Southern California Consortium for Community College TV, California
Southern Illinois Collegiate Common Market, Illinois
Tarrant County Junior College District, Texas

The ITC was started in 1977 as the Task Force on Uses of Mass Media in Learning, and is now being reorganized as a permanent agency of the AACJC in recognition of the fact that instruction via mass media seems destined to stay and is in need of representation at the national level. One major goal of the restructuring is to make ITC more responsive, particularly to the distinctive needs and problems of the growing number of institutions that have no interest in producing media materials for national distribution, but do have a strong interest in using them effectively in their community service programs and in their instructional programs aimed at off-campus student groups.

In short, the principal goals of the ITC are: 1) Disseminating information about instructional telecommunications. 2) Assisting institutions in the utilization of such materials. 3) Encouraging cooperation in media-based curriculum planning and course production. 4) Having some voice in the formation of federal and other policies as they affect instructional broadcasters and users of TV courses at the post-secondary level.

At present, ITC membership totals 20 institutions, comprising single colleges, multi-campus districts, and regional consortia (see the accompanying box). Association activities are supported by annual dues paid by members that range from $500 to $1,500 for those members that are themselves consortia of colleges. In fact, ITC now represents close to 200 separate institutions.

The sole interest of consortia is not necessarily the promotion and improved utilization of telecourses and instructional TV materials. Within ITC, for example, are the major two-year-college producers and distributors of telecourses—Coast, Dallas County, Miami-Dade, and Southern California. (Naturally, members of these consortia are also among the major users of TV materials.) Several others, including Northern Virginia and the Bay Area, have produced nationally distributed TV courses on occasion, while Maricopa concentrates much of its efforts on radio.

These producers often organize themselves into consortia for the design of materials in which they have a common interest. Unlike the broader-based consortia concerned with continuing telecourse use, they are established on an *ad hoc* basis for specific activities. Some five or six collaborated on the production of *Understanding Human Behavior*, the widely used introductory psychology series distributed by Coast Community College Telecourses. Sometimes commercial organizations are also partners in these ventures and reserve distribution rights to certain film or print materials.

One of the partners is the lead institution and controls the video production, once the content has been agreed upon. For the psychology series, for example, Coast contributed the use of its production facilities and personnel at KOCE, the PBS station it owns and operates. Typically, the other partners make a direct financial contribution to the venture and assign a faculty member (or members) to the program development team. Once the project's original costs have been recovered, royalties are shared in proportion to each partner's investment.

We can expect to see more design and production consortia form for specific tasks as the Corporation for Public Broadcasting/Annenberg project for adult education gains momentum. Since PBS stations are also eligible to submit Annenberg proposals, we shall also see them joining forces with the colleges in production efforts. The broader the institutional participation, the broader the presumed market for the product.

Are There Four-Year-College Consortia?

Telecommunications consortia are not exclusive to two-year colleges. Other major higher education associations are about to or already have organized nationwide consortia like the ITC. For example, the National Association of Land Grant Colleges and Universities, which includes a sizable number of institutions licensed to operate PTV stations, recently formed its own telecommunications task force.

The University of Mid-America (UMA) is too well known to require much comment here. It is an association of eight mid-western universities that use telecommunications-based courses that is now undergoing a transformation into an organization with a wider geographic base and a more comprehensive distance-learning orientation.

Two consortial organizations which involve four-year colleges and universities are worthy of special note. One is the Wayne State "To Educate the People" consortium; the other is the National University Consortium (NUC).

Wayne State, which is located in Detroit, has received support from the National Endowment for the Humanities and the FIPSE. It is a group of two- and four-year institutions that offers a degree-directed program for working adults, using open-broadcast TV programs. The curriculum has a strong humanistic foundation, and the off-campus enrollees hold weekly meetings in convenient locations and attend periodic on-campus weekend seminars. Labor unions cooperate closely with the consortium directors and local institutions.

NUC has its headquarters at the University of Maryland University College in College Park. During its initial phase, it was funded by the Carnegie Foundation and it now has a dozen or so college and university members, both public and private, around the country.

NUC members offer courses from the British Open University (BOU), adapted for use in this country by the University of Maryland, as well as courses the consortium itself designs. The video portions are beamed by satellite to participating PTV stations, which record them for later re-broadcast. Unlike the courses used by two-year colleges, which contain 30 half-hour video programs for each three-credit-hour unit, BOU and NUC courses have relatively few video programs and rest on a heavy print base, even though the student receives six to nine hours of credit.

The NUC is chartered as a non-profit institution under Maryland law, and is governed by its own by-laws. Institutions are granted membership only if they meet certain requirements. There is an annual membership fee, and an expectation that, within the next few years, dues and a sharing of student fees will make the operation self-sustaining. The curriculum is a demanding one and the appeal (thus far, at least) is to the highly motivated student—twice as many women as men to date—who has already completed a good chunk of college work.

Why Join a Consortium?

Thus far in this article, I have tried to present an overview of a fairly complicated picture. Now let me turn to the question of why consortia are beginning to flourish like the scriptural green bay tree. Following that, we can venture a few guesses as to what future developments will be.

As I have indicated several times, one obvious advantage of consortium membership is the access members have to high-quality materials at a lower cost than any single institution would pay if it leased or purchased them on its own. In fact, distributors can often be induced to establish more favorable fees for use of materials if they are used on a regional basis.

But even if they are not, the cost per individual member within a consortium is relatively low. This is particularly true for many public community colleges, since the funding formulas in many states call for providing funds in proportion to the number of credit hours a college generates. Usually, no distinction is made between hours that are generated by TV instruction and those that come from conventional classroom instruction.

For example, if a telecourse can be leased for $3,500 for one-term use by a consortium of five member colleges, the cost per college is only $700. Even if there is an additional payment to the distributor on a per-student/enrollee basis, the cost-sharing makes it economically feasible for smaller institutions that may enroll only 15 or 20 students in the course to participate.

Again, the picture is particularly favorable for the public community college. It may receive $15 or $20 per credit hour via the funding support formula of its state, plus the student tuition fees. (This is the case outside of California.) Thus a college may be able to pay its share of the leasing costs and still cover the cost of the required local supplemental instruction. Added to these benefits are those that accrue from the community service the college provides by offering a telecourse on cable or broadcast TV, and they are the real reason for joining a consortium.

The same cost-sharing benefits are available to colleges that become members of production and design consortia. As everybody knows, TV courses that are used widely must be more than simply acceptable academically. They must also be "good" television and capable of attracting and holding the attention of viewers who take production quality for granted. Not only must they attract those viewers who want to earn college credit, but they must also appeal to a general audience of the kind that turns to public television as an alternative to the mindless programming on commercial TV.

This means an investment of money and resources far beyond the means of most single institutions. When one institution supplies the production facilities, collaborating colleges can acquire unlimited use rights to a quality product for a modest investment of money—usually in the range of $50,000 to $75,000—and faculty expertise. Then, too, the collaborator helps determine what courses are produced and helps decide the content of the courses.

Consortia of users and producers are also relieving what has long been an affliction for the instructional broadcaster. Most broadcasters (ironically, PTV broadcasters among them) are disinterested or actively dislike formal instruction. A consortium, unlike a single college, or an association within a given area represents a constituency worth heeding. Even if the actual audience size is not significant in a broadcaster's terms, programming to that audience still constitutes a noteworthy community service.

For the proponent of TV-related distance-learning projects, the growth of consortia is particularly valuable because it encourages long-range curriculum planning, something that has been conspicuously absent from post-secondary ITV activity in the past. For such consortia as the ITC, member two-year colleges can report broad student needs and curriculum preferences, and can supply guidance to producers concerning what courses and approaches will satisfy requirements in high-demand areas so that the course will attract credit students term after term.

In effect, the consortium creates a two-way street. On the one side, institutions that are steady users of telecourses but have neither the capability nor inclination to produce them can exert direct influence on what is produced, and can be assured a flow of materials that meet their students' needs. On the other side, producing and distributing agencies can know in advance that they will find a market for their product so they need not be reluctant to embark upon the expensive and time-consuming production process.

This opportunity for give and take between producer and user becomes even more important now that projects like the PBS educational/instructional service, PTV-3, is well underway. This project beams college-credit and informal adult educational programming via satellite to PTV stations and colleges around the country, and, one would assume, ITC and other regional consortia will become valuable resources for PTV-3 (CPB/Annenberg) planners, as well as planners of other TV-related distance-learning projects. Consortia can provide information and advice on what kinds of courses adults actually enroll in, and they can certainly be of assistance to these agencies as they plan for meaningful sequences that satisfy demonstrated curriculum needs.

One final advantage: A national or regional association certainly can influence a funding source as it makes its decision to/not to fund a production proposal. Any foundation or project is likely to look with favor on a proposal for a course or sequence of courses that is, everything else being equal, bound to find use in several hundred two- or four-year colleges.

What About the Future?

If you think the consortium idea a good one, remember that not all consortia are successful. Some are little more than ceremonial affairs, established merely to placate state officials who are disenchanted with expensive duplications of effort in higher education. A look at the ones that work makes it clear that consortia must not be imposed from the outside, but must arise on their own in response to commonly felt needs. They address specific problems.

Above all, consortia require strong and imaginative leadership and the shared sense that their goals cannot be met in any other way than through mutual cooperation. Without a strong commonality of interest, no matter how distinguished each of its members, a consortium will soon fall apart. A telecommunications consortium will not be effective if all members of the group do not see TV and other media-based instruction as part of their main-line activity.

If, as their proponents believe, telecourses do really become part of the mainstream of all of higher education, there can be little doubt that telecommunications consortia will continue to flourish. There may, of course, be fears expressed that some of us are trying to create a "national curriculum" that will endanger the local autonomy so precious to educators in U.S. colleges and universities. The economics of telecourse design and production certainly make inter-institutional cooperation and resource-sharing desirable. Likewise, the economics of telecourse use make group arrangements only right and reasonable. Whatever "nationalizing" of the curriculum may occur as a result of increased inter-institutional planning will merely reflect the elements already common in the major curricula as they are now found in colleges across the nation.

Part of the future of post-secondary-level ITV almost certainly lies in the area of professional and occupational development. Special-interest groups, e.g., the health sciences and the business professions, recognize the newer telecommunications technologies—cable, video-cassette, video-disc, "narrowcast" broadcasting like ITFS—as effective and inexpensive ways of delivering the continuing education that the states are now mandating for licensing. Certainly planning and production consortia will make sense for professional and occupational associations.

Even though the prudent seer always allows for a cautious "on the other hand," it looks as if telecommunications consortia will continue to increase and multiply.

Article 49

"The Economics of Telecourses"

by
Kiki S. Munshi

As with any other product, the costs of telecourses can be considered from either the producers' or the users' point of view. Our primary concern is with the institutional user, but since initial production costs and funding determine a major component of user costs, we felt a brief review of these would prove a salutary exercise.

The Producers

The major television series that form the basis of wrap-around courses are very expensive to produce. Thirteen 55-minute programs can cost up to 10 or 11 million dollars. Fortunately for college users, these costs are usually underwritten by other funders.

Courses *for* television vary greatly in cost—from less than $100,000 to nearly a million dollars for a 30-minute, 30-program series. Generally the cost is proportionate to the "production quality" or how nice the program looks on the screen and how interesting it is. This is not always the case, but unfortunately, a variance from this rule more often is that expensive programs turn out poorly rather than that low-budget productions are excellent.

Costs for the preparation of accompanying print materials again vary, but within a smaller range. The budget for the production of a study guide (to the manuscript stage and including liaison with a publisher) and for production and distribution of an Academic and Administrative Support Package in a recent wrap-around telecourse was about $27,000. This figure would be increased substantially if the package had contained a book of readings, or if the instructional designer were also involved with the design of the television programs. A typical budget for disseminating information about such a series might run around $30,000 including design, printing, and mailing for brochures and "preview packets," together with telephone support. This amount would be higher if mailing of preview cassettes were included and neither of the types of costs discussed in this paragraph includes institutional overhead.

A television station (with greater or lesser involvement from a college) and a college (with greater or lesser involvement from the station) are, respectively, responsible for producing programs and print materials. The colleges are normally responsible for the national marketing of the telecourse package. There may be a separate but concurrent effort by a station to market the programs in a series.

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From Kiki Skagen Munshi, "The Economics of Telecourses," in *Telecourses: Reflections '80*, 1980, pp. 22–29. Reprinted by permission of the Corporation for Public Broadcasting.

Funding for *both* programs and materials generated for telecourses and for marketing can either come from internal institutional funds, from outside grant funding, or from commercial investment. To date, *most* of the funding for all the major telecourse producers except the University of Mid-America has come from within the institutional environment, with the colleges hoping to recoup their costs from revenues.

To this point, however, our description has omitted a third member of many telecourse production teams: a publisher. Some institutions produce their own print materials for distribution. When they do not, the most common model is to enter into a contractual agreement with a publisher. The colleges generate a manuscript, the publisher makes it into a book, and the colleges, as authors, receive royalties on book sales. The publisher hopes to realize a profit on the sale of a large number of books because they are associated with telecourses and, in effect, invests in the telecourse through the costs of book design, production, storage, and shipping. The amount of this investment depends on the length, format, and design of a book or books, and the number of copies printed. Estimates of investments for recent courses have ranged from $6,000 to $70,000. Additionally, several major publishing houses have co-ventured on the production of television programs.

Revenues for telecourses come from three sources: lease/sale of programs, sale of Academic and Administrative Support Packages, and royalties (or sale of) books. Additionally, colleges that use their own telecourses for local students may apply part of this income toward amortization of production costs. Telecourse income is shared among stations, colleges, and publishers. In some cases, a fourth party, often a commercial organization, is added as the distributor of the programs for nonbroadcast uses.

Do investors make money on telecourses? To date no one seems to know. As in book publishing, some courses do well and some do not—but the ones that fail cost a college proportionately much more than a book that fails costs a publisher. None of the five major telecourse producers questioned is sure or is willing to say they make money or break even for either wrap-around courses or courses *for* television. *The Ascent of Man* made money for almost everyone involved; *Classic Theatre* did not. *Man and the Environment* has now recouped its costs for Miami-Dade; Miami-Dade figures that it should cover its investment in its new humanities course within seven or eight years if sales do reasonably well. A respondent from the University of Mid-America said that it was not possible to charge high enough fees to recover the costs of making good telecourses. Each producing institution seems to have had difficulty devising an accounting system that reflects its costs and revenues accurately, and none of the accounting systems was comparable to another.

The publishers' experiences have been similarly mixed, although their accounting systems may be more accurate. Their position has been further complicated by the need to estimate book sales for production and their vulnerability to returns.

Most publishers estimate that they may produce an overage of 6 to 10 percent on a given print run of books—these are books that are remaindered (sold at greatly reduced prices) or destroyed. Similarly, a publisher can absorb, without too much pain although perhaps with much complaint, returns of about 10 percent. If a production overage *or* returns hit 15 to 20 percent, the publisher (and this changes with the total number of books sold, of course) begins to lose money.

Because of problems in estimating telecourse enrollment, publishers have produced up to twice as many books as have been sold, and have had returns of up to 50 percent. In other cases, however, they have made substantial amounts of money.

Users: The Colleges

The economics of telecourse use for colleges and universities are complex and are probably unique for each institution. Gathering information about them is additionally complicated by the general lack of explicit knowledge about educational costs and benefits within an institution.[1] Some of the strictly economic variables that affect colleges *on each telecourse* are as follows:

- Does the institution pay to rent or lease the programs?
- Does the institution pay for air time?
- Does it have to generate enough income from tuition/FTE reimbursement to cover other than "out of pocket" expenses, and if so, what is included?
- Doesn't have control over the tuition funds generated or do they go into the general fund of the State?
- Does it receive state or grant support in any form?
- How much does it pay faculty to teach telecourses?
- What is the competition in the immediate area for students? (i.e., are there any institutions offering the same course for credit at an equivalent or lower cost to the student?)

The ideal situation for a college is, of course, being able to offer a telecourse for which it has no competition, for which it pays neither a user fee nor air time, but for which it does receive state support in the form of ADA or FTE reimbursement and for which it can hire inexpensive faculty. Few colleges operate under ideal conditions but various combinations of these factors can lead to success; however, the institution that is able to meet its expenses without any of them in its favor is rare, if not nonexistent. Overall, because most users of telecourses need support from sources above and beyond student tuition and the producers are uncertain of their net gain, we have come to the conclusion that telecourses as a system do not "make money." Individual institutions dealing with a part of the process have done well but to date telecourses seem to have cost more money than they have generated.

Table 1, drawn from the sample of colleges interviewed, illustrates our contention. It is not definitive for there are a number of factors not included and judgments have been made on the basis of sometimes incomplete information about costs and revenues. These judgments were, however, checked against numbers included in the "number of students needed to break even" and "number of students typically enrolling for telecourse" questions. In cases where there was a conflict between general answers and data for the current year, we used data for the current year. The pattern that emerges is supported by informal data from a number of other individuals and sources.

The variables in Table 1 are (a) whether an institution received some form of reimbursement from the State for telecourse students; (b) whether an institution had to pay for the lease of a telecourse series and air time from telecourse revenue (and if they did, whether these costs were diluted through consortium membership); and (c) whether the institution was two- or four-year (in any given area two-year institutions charged lower fees for courses than four-year and, probably as a result, had larger enrollments).

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1. Various comments from the American Council on Education Study of Cost Analysis in Higher Education support the impressions we gained during our research: "Cost is not a dominant consideration in most allocation decisions. Program completeness, program quality, institutional priorities, and interpersonal relations frequently are more important than costs. . . . There is a general lack of interest among institutions in managerial cost accounting." From "A Study of Cost Analysis in Higher Education," Volume 2, *The Production and Use of Cost Analysis in Institutions of Higher Education* (Washington, D.C.: American Council on Education, 1978), page 126, cited in Thomas O'Conner James (1978).

Table 1

Who Made Money on Telecourses under What Circumstances?

	State Support or Tuition Only	Two-Year Paid[a] C	Two-Year Paid[a] NC[c]	Two-Year Free[b]	Four-Year Paid	Four-Year Free
Broke even or made money, counting overhead	SS		1	1		
	TO				1	
Broke even or made money, not counting overhead	SS	2	1	2		1
	TO					2
Lost money	SS		2			
	TO				1	4

a. Paid for lease / rental of cassettes and air time (usually).
b. Did not pay for lease / rental of cassettes and air time.
c. Consortium member / nonconsortium member.

The results are fairly clear. Proportionately, more institutions with state support "made money" than those without state support, more institutions who did not pay for air time or belonged to a consortium "made money" than those who paid full charges, and two-year institutions came out better than four-year institutions. The one exception was Seattle Pacific University. This four-year institution broke even counting overhead, received no state support, and paid for its programs and air time. As we have noted before, however, it offered primarily continuing teacher education courses that fulfilled state certification requirements.

Of the eleven institutions that fell into the "broke even or made money" categories, five stated they made a lot of money. Of these, two four-year institutions did not pay to lease courses or air time; neither did two of the two-year institutions. The fifth (two-year) institution leased some courses but was a major producer and did not pay air time.

The Stations

The economic picture for PTV stations is not nearly so clear. In most cases there is no measurable unit of benefit or return on programs such as the student and his tuition or FTE.[2] The nearest yardstick other than that supplied by the colleges is "numbers" or the size of the viewing audience. As we noted above, this is generally not measurable for telecourses and perhaps should not be rigidly applied to evaluate their benefit. Another possible index is the generation of memberships; the closest we have come to formulating a pattern in this area is that there seems to be an inverse relationship between a station's dependence on memberships as a source of revenue and its offering of or investment in the use of telecourses.

Two clearly economic aspects of telecourses do exist. The first is a specific mandate from a funding source such as a State Legislature to serve the needs of post-secondary education. This occurred in several State licensee systems and as a portion of the funding of some University licenses. The second is income from the sale of broadcast time. This is augmented if colleges pay for the use of programs that are to be aired, since the station does not then have to purchase or arrange for other material to fill those spaces.

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[2] The Mississippi State Educational Television Authority charges the colleges $10 per enrolled student. This kind of charge is the exception rather than the rule.

Station and/or College Pays For
Rent/lease/purchase of programs
Tape stock
Bicycling costs
Tape/dub cassette for library or media center
Air time
Publicity
Evaluation
Consortial and/or membership fees

Station Pays For
Monitoring technical quality, checking program numbers, etc.
Staff time for educational liaison, other activities
Publicity
Overhead
Supplies and Expenses

College Pays For
Institutional print materials (AAS packages)
Nonteaching staff time
Faculty salary
Supplies and expenses, including phone, postage, and photocopying
Computer support for student services
Publicity
Consortial fee
Overhead

Figure 1. Telecourse utilization costs by payor.

On the other side of the ledger, unless a station produces telecourses or has a full-time utilization person on staff (present in 17.7 percent of responding stations in 1975–76), the expenses of offering telecourses need not be very great, particularly if the colleges pay for the purchase or lease of programs and air time.

The purchase and lease of programs, and the purchase of air time both fall in categories that can be the responsibility of either stations or colleges. We have prepared an outline (Figure 1) to present specific expenses associated with telecourses; following it is a range of costs for each item. Our figures should be taken with a grain of salt. In most cases answers from both station and college respondents were vague. Our respondents seldom dealt directly with budgets. Further, creative accounting systems often meant that costs were fragmented, buried, or otherwise not easily available.

College and/or Station Costs

Rent/Lease/Purchase of Programs

Fees range from nothing to several thousand dollars. Wrap-around courses are normally free to user colleges because they are broadcast for a general audience. In some instances, however, stations have asked for contributions. The series may be free to the stations; at other times they may be relatively expensive. They are usually expensive if a local station wishes to purchase a series for reruns after national funds have ceased. *The Ascent of Man* for instance, was initially underwritten by the Arthur Vining Davis Foundation and the Mobil Oil Corporation and supplied to PTV stations at no charge. It now costs several thousand dollars to lease.

The lease or purchase of programs may be paid for through a direct payment (e.g., $3,000 for the unlimited broadcast use of a series for three years), through a direct payment plus a per student fee (e.g., $2,250 plus $10 per enrolled student), or on a per student fee only (e.g., $32 per enrolled student). Fees may or may not include a limited number of broadcasts/times of use, duplication rights, or use in nonbroadcast situations.

Tape Stock

Tape stock is an occasional expenditure of some magnitude. Two inch quad, most commonly used for broadcast, runs from $200–300 per hour of stock, depending on dealers' prices and the size of the order. A number of stations participate in group buys in order to reduce unit prices. Three-quarter-inch stock, used by some stations for broadcast purposes, is much cheaper—approximately $15 an hour—but the station must possess auxiliary equipment for its use.

Both types of stock can be reused. Two inch quad tapes are good for about 100 "passes" (plays, rerecordings, or a combination thereof) and ¾ inch for about 30 passes before they need to be retired to nonbroadcast use.

Bicycling Costs

These are costs of getting tapes from here to there. Often the seller bears them. Our respondents from stations that paid these costs generally characterized them as negligible; others indicated the college provides the service.

Tape/Dub Cassettes for Library/Media Center

Many stations did not do this; many colleges did not have it done. Where colleges did not have in-house capacity to dub tapes, they generally but not always paid the stations. A typical charge for a ¾ inch cassette was $8.50 per hour plus the cost of the tape. Another study (Dirr, Kressel, and Pedone, 1979) found that 26 percent of two-year colleges which used television for instruction in 1978–79 were provided with dubbing services by their local PTV stations.

Air Time

Public television stations donated air time for wrap-around series; many commercial stations donated air time for telecourses as partial fulfillment of their FCC-mandated public service requirements. The State licensees we interviewed (Mississippi and Kentucky) did not charge for air time. The University/College licensees did not currently charge the institutions with which they were associated, but did charge other institutions. The community licensees interviewed charged fees ranging from $137 per hour to $218 per hour. Often stations charged differential fees, offering lower rates for air time to educational institutions. According to a number of respondents, these charges covered the station's immediate expenses for broadcast time only. The CPB/NCES study found that only 1 of 4 colleges paid for air time. The average amount was approximately $125 per hour (Dirr and Pedone 1979). In that study, however, no distinctions were made between colleges using wrap-around courses and those using courses *for* television.

Evaluation

We did not ask our respondents about evaluation of telecourses and the costs it entailed. This category was suggested at a later meeting of station managers. Their belief was that very few stations and probably fairly few colleges spent much on evaluation, but that it was an area that needs more attention.

Evaluation costs for a college can range from a few dollars for a sheet passed out in class to many thousands. A large community college estimates that questionnaires covering all the telecourses offered in a semester cost about $1,500–2,000 to prepare, mail to 5,000 students, and evaluate.

One of the few PTV stations that has a full-time researcher as a regular part of its staff reported that basic support for the office cost about $30,000 per year and that each survey cost another $500–600 to design and conduct. Our informant added that certain costs were not counted in these figures since the station relied on a great deal of volunteer labor. This research, of course, covered all station operations: one way to arrive at the amount that should be assigned to telecourses would be to calculate them in proportion to the amount of air time they occupied.

Consortial Fees

These vary according to a wide variety of factors. One consortium charged 25 cents per enrolled student FTE in member colleges. Others charge on a percentage of expenditure basis. What emerged from our research is that a formula for equitable and effective consortium funding is yet to be found.

Station Costs

Monitoring Technical Quality, Checking Program Numbers, Etc.

Before a program is aired, many stations wish to ensure that it is not damaged and that it has the correct program number and title. One station did not do this. Others did, saying that this was standard procedure when they were not sure of the source of programs. Responses about costs—none with figures attached—ranged from "in-house costs like these are never broken out" to "we spend a significant amount of time handling improperly dubbed and badly labeled tapes."

Staff Time for Educational Liaison, Other Activities

This was clearly one of the major costs connected with telecourses for some stations—those with a high involvement in post-secondary activities. To others—those who simply allotted a certain amount of air time and let colleges fill it—it was negligible. Among our respondents there was no clear correlation between this item and licensee type, size of audience, funding source, or expressed station philosophy.

Publicity

Most stations incurred few costs for publicizing telecourses. On-air promotional slides and listings/occasional stories in monthly program guides were the extent of their station publicity efforts. Some stations worked with the colleges, advising and lending expertise in this area, but counted this time under staff costs.

Overhead/Supplies and Expenses

None of the respondents gave us a formula or means of figuring overhead on itemized expenses. Similarly, none attached a figure to supplies and expenses.

College Costs

Institutional Print Materials

The cost of these materials ranges from nothing (usually with leased or purchased courses) to $200. It is a one-time, nonrecurring expenditure as AAS or similar packages can be used throughout subsequent offerings of the course.

Nonteaching Staff Time/Supplies and Expenses

No respondent was able to attach figures to these except Seattle Pacific, which figured $10 per credit, although several respondents were able to identify numbers of staff/portions of staff time devoted to administering telecourses. Given the difference in telecourse operations, inter-institutional comparisons are not possible in this area. Four respondents who handled both telecourses and other courses felt they spend significantly more time (they could not identify exact percentages) with telecourses than with nontelevision-based classes. However, this may have been related to the use of a new educational system. Common sense indicated that beyond a base point these costs should be directly proportional to the quality and quantity of student services an institution provides.

Faculty Salary

Salaries for telecourse faculty ranged from $250 to $1,680 per three-credit course. No clear patterns concerning two- or four-year institutions—public or private—or success of telecourses were apparent in the data except that three of the lowest salaries were paid by three of the least successful institutions. The respondents from institutions which assigned telecourses as part of a regular course load did not provide figures in this area.

Salaries were, for the most part, beyond the control of the telecourse administrator, being determined by university regulations and/or by the prevailing rate for similar courses/overload units. In some cases, however, there was scope for negotiation. Larger than normal numbers of students were assigned to telecourse faculty in some institutions. In others, adjustments needed to be made because the instructor for a course spent fewer hours "in class." Faculty were paid by a variety of means: on an overload basis, per credit, per student, per hour, or as a percentage of a regular course load.

Publicity

In some institutions there seemed to be a relationship between money spent on publicity and enrollments in telecourses. As in most areas, however, data was incomplete for a majority of sources. A number of respondents said that (1) publicity costs were buried in several budgets, (2) they combined telecourse publicity with other publicity, or (3) they did not really know how much they spent.

Computer

A few of the largest telecourse users have installed computer systems to keep student records, to assist research and evaluation activities, and to provide variable responses to student performances on quizzes. Once hardware and programs are available, Miami-Dade figures an added cost of $5 per student per class for the last service; other costs depend on a wide range of factors. A general rule for computer use is that it becomes increasingly cost-effective as numbers of students grow.

Overhead

Most colleges and universities either did not or were not required to calculate overhead, and the definition of "overhead" itself varied from institution to institution. Two respondents had figures to account for overhead charges: one was 20 to 30 percent; the other 150 percent of direct costs.

In sum, the costs of telecourses to either station or college varied widely in response to many factors. Our conclusion was that it was not possible to prepare a cost formula that was universally applicable. What is possible is the material we have presented—a list of costs (Figure 1) that can be used as a check sheet for telecourse expenses, including those that may need to be negotiated between station and college; and a list of questions that should be among those an institution considers when evaluating the benefits of offering a particular telecourse.

Costs for Students

The end receivers of telecourses are students. Their costs are probably the same as or somewhat lower than they would be for regular courses in the same division or department of their institution.

Tuition: This depends on the institution, and the number of credits assigned a telecourse. As mentioned above, telecourse tuition is generally equal to or lower than tuition for nontelevision-based courses in the same department or division of an institution.

Books and Materials: Telecourse packages usually range in cost from $10 to $25 depending on the number and quality of the books. The additional expenditures for supplies such as paper are probably equal to similar expenditures for on-campus courses.

Gas and Time: Savings in this area can be significant. Most telecourses require fewer on-campus meetings than regular classes; costs vary directly with the number of required campus visits and the distance of the student from the campus.

Income from Telecourses

The income from telecourses to educational institutions falls into two areas: actual cash flow, and, assuming we are dealing with at-home students, savings in institutional overhead (plant and administrative costs). Robert McCabe (1979) estimated the latter to be about 30 percent lower than overhead for traditional on-campus courses, but this assumes that television students *would* be accommodated by an institution or attend it were it not for broadcast education.

The actual cash flow is easy to calculate:

$$\text{Income} = \text{Number of students} \times \text{Cash income per student.}$$

The cash income per student is generated by tuition and/or FTE reimbursement. Calculating it, however, is complicated by the fact that some colleges or continuing education programs are not supported on the basis of head count. They are supported to a greater or lesser degree by the State or their institution and that support may, but does not necessarily, change according to the number of students.

In looking at the presence of support, tuition levels, average enrollments, and break-even enrollments, we have come to the following loose generalizations: there is a tenuous, positive relationship between average actual numbers of students in telecourses and the number required to break even; four-year institutions often had a higher tuition per course, lower enrollments, and lower break-even points than the two-year institutions; and four-year institutions, in general, seem to receive less state or institutional support than two-year institutions for those programs in which telecourses are located.

Table 2

Comparative Cost Distribution for a Typical Community College Traditional Education and Television-Centered Education*

Traditional	Television-Centered
Institutional Support— 50% ± Plant operations; administration; institutional programs; compliance and reporting; student services; instructional support.	*Institutional Support—* 35% ± Plant operations; administrations; institutional programs; compliance and reporting; student services; instructional support.
Direct Instruction— 5% ± Instructional Materials 45% ± Instructional Personnel—including salaries and fringe benefits of faculty, instructional aides, etc.	*Instructional Materials Acquisition and Modification*—15-20%
	Delivery System—5-15%
	Delivery of Instruction— 15-35% Includes costs of air time and faculty salaries.

*From McCabe, Robert H., "The Economics of Television-Centered courses" in Roger Yarrington, ed., *Using Mass Media for Learning* (Washington, D.C., AACJC), 1979, p. 31

Tuition ranges for broadcast television courses in four-year institutions were from $60 to $120 and averaged $82.88 for three units. In two-year institutions they ranged from 0 to $115 and averaged $34.33 for three units. This average is skewed by the presence of three California community colleges, which charge no tuition at all, in the sample of nine for which tuition figures were available.

Responses concerning average enrollments for four-year institutions ranged from less than 10 to 300, and break-even enrollments ranged from 10 to 125. For two-year institutions average enrollment estimates ranged from 23 to 200, and break-even enrollments from 20 to 250.[3]

Are telecourses cost effective? It probably depends on what one means by "cost effective." If this means that they pay for themselves from start to finish without the assistance of tax dollars or grant support, no. If it means that they compare favorably with on-campus courses, given prevailing levels of support, the answer is probably yes. What we can say with some certainty is that the cost structure of television courses is not that of on-campus courses. McCabe (1979) states that "in television-centered courses traditional costs are reduced and new costs added," and proposes the cost-structure analysis shown in Table 2 as a means of comparison.

McCabe also points out that the profile of marginal cost per student is very different than that for on-campus courses: "The high fixed cost and low incremental costs [of telecourses] form a declining cost curve which begins above traditional instruction, and crosses below at a predictable level of enrollment, depending on the individual institution, the course, and the instructional services provided." In other words, once enough students enroll to cover basic costs, each additional student is, in large proportion, "gravy."

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[3] According to Dirr, Kressel, and Pedone (1979), the average enrollment for all two-year colleges offering televised instruction (including on-campus closed-circuit) was 73 students per course.

A related question that is probably as important as "are telecourses cost effective?" is whether education *should* be cost effective on a "here and now" basis. Although few of us can endorse wasteful expenditures, most of us recognize that there are positive social benefits to education. These may not be amenable to immediate measurement, but in the long run they generate an economic as well as a social return.

An immediate social benefit of telecourses may be the savings on transportation and time mentioned under Student Costs. As energy grows more expensive, the substitution of telecommunications for systems involving extensive travel may be increasingly desirable. Another benefit is the new audience, however large it may be, that telecourses reach. These are, however, benefits that an individual institution often cannot count, and many institutions are having difficulty justifying the use of telecourses from an economic standpoint. We, therefore, suggest that ways must be found to support the use of telecourses if they are considered socially valuable and if their use is to increase.

> Needed research: *At what point, to whom, and in what amount is support for telecourses most desirable?*

Several organizations have begun to address themselves to these questions. Both the Carnegie Commission on the Future of Public Broadcasting (*A Public Trust*, 1979) and the PBS Adult Learning Task Force have recommended that more money be allocated to the production of educational television programs. More specifically, Carnegie recommends a program Endowment which would "finance and stimulate the development of quality programs that both test and demonstrate the potential of telecommunications for learning. We recommend that the Endowment, acting as a catalyst, allocate $15 million per year for such research and demonstration programs on television."

Within the college system, a report to the California Educational Telecommunications Committee (California Postsecondary Education Commission, 1979) suggests that the State subsidize upper division telecourses that are offered in Extension Divisions and can be transferred into a student's regular program, much as it already does for lower division courses in junior and community colleges. McCabe (1979) suggests that educational institutions reassess the way in which they analyze costs (cf. above).

Support for students in post-secondary education programs may or may not include telecourses. The Veterans Administration and other programs at both the state and federal levels often have requirements—full-time attendance, enrollment in a degree course, presence in a classroom—that exclude nontraditional students. A number of organizations have recently initiated discussions on ways these regulations could be modified; their modification would, presumably, enable a substantial portion of potential telecourse consumers to be provided at least partial payment for their education.

Institutions may be able to do a number of things to decrease their costs or extend their outreach capacity. The first step for some may be simply to identify costs and to account for income more clearly. Outlining and refining adoption procedures and student support services is another useful course of action. Expenditures on promotion increase enrollments but it is also possible to measure the effectiveness of these expenditures. Consortia provide a means of distributing investments in courses and air time and support for informational activities.

Both producers and users need to explore alternative uses of telecourse materials, and systems through which their purchase might be shared—for instance, cost sharing with a media center (if rights permit), which would then allow professors to use individual tapes in classes.

Producers also need to increase the "backlist" or "next-time-around" use of wrap-around series. At this time, decisions to air these series after the national feeds are made by individual stations or regions. These stations or regions often must pay high fees and do not always take college needs and the series potential for educational use into account. Some colleges also purchase these series, but such purchases seem to be limited by high costs.

To date, support for telecourses from outside the immediate system, either in terms of subsidies or initial investment, has come from three major sources: underwriting of series that, serendipitously or as a result of planning, lend themselves to educational application; state or federal tax monies in the form of outright grants or student subsidies; investments made by publishers. The third area is a form of support that must be recouped over time or it will cease. The first two, although they will undoubtedly continue, may not grow in size since there is every indication we are at the top of an S-curve in educational expansion. Many currently point to the prospects of declining expenditures, and nontraditional education is, traditionally, the first target for reductions. If the use of telecourses, or more broadly, telecommunications in education is to expand much beyond its present base, it may be necessary for educational institutions to seek new strategies for securing support and to build alliances with noneducational groups, beginning with stations but, perhaps with their help, moving beyond them.

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Article 50

"From 'The Ascent of Man' to What?"

by
Michael Rice

What lies ahead for telecommunications and higher education?

I take the question from the perspective of one who until lately made his career in noncommercial broadcasting. We will recall that it was first called "educational broadcasting" and only later confirmed in a new identity, when it went "public."

In 1965, when I joined WGBH-Boston full-time, its major income was tied to decidedly educational applications. An association of local school systems, called the "21-Inch Classroom," paid and helped plan for a regular daytime broadcast schedule of instructional programs to assist teaching in elementary and secondary classes. And the U.S. Navy was the source of its biggest production contract: A project undertaken with Harvard's Extension Studies to produce several televised college-level courses that, together with other requirements, could be taken for credit. These were basically courses the Navy wanted in film form to use to relieve the idle hours of submarine crews underseas but, once produced, were also available for broadcast to adults in the Boston area.

Even then, most professionals at the station did not have their heart in such specific and narrow educational missions. Already, they regarded those projects at best as necessary gestures to support a growing enterprise with its eye turned to a broader audience—the audience who might be diverted from commerical broadcasting to something much better, something that WGBH would then exist to provide.

While WGBH was launched by educational institutions interested in using first radio and then television to extend the reach of their resources and teaching mission to a wider public, the station was soon led, programmed, and pressed forward by staff professionals who felt they were in the business not so much of education as of broadcasting—not commercial broadcasting, to be sure, as it was known in the U.S., but broadcasting nonetheless: In particular, that special brand of it that was frequently compared to the BBC.

1965, then, was perhaps the high-water mark of that station's integral involvement with the formal educational process. Defections of schools from the 21-Inch Classroom association—as the result of financial strains or disappointments with the value of TV instruction—subsequently led the state to pick up the annual tab. The state then kept the budget at so minimal a level that no

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new program production for the schools was possible, only the repeated airings of programs already "in the can." The adult college credit courses disappeared soon after the Navy contract expired.

This was of course just one station's experience. But it is worth noting that this station was classed among the most successful of its kind. It was located in one of the world's greatest concentrations of leading educational institutions (whose presidents sat *ex officio* on its board). Yet so strong was the pull of the professional aspirations of its staff, reinforced by the grateful response of a growing audience, that even in Boston this child of the educational establishment grew up into something quite different from what had been intended.

I look back partly to disclose my own prejudices, partly to illustrate the hazard that accompanies any attempt on the part of education to harness an electronic medium that already has its own and different criteria for success. For broadcasting, there was, finally, no getting away from the widely prevalent judgment that a program had to attract a sizable number of viewers or listeners to be deemed worthwhile—and "sizable" had to mean many more than the highly-motivated audience who might turn to the medium explicitly for academic instruction. University presses, perhaps, have encountered the same hazard on a different scale.

Apart from certain state systems of public television that are financed and mandated specifically to serve educational institutions, WGBH's history reflects the trend of public broadcasting nationwide. While the non-commercial broadcast channels were originally reserved, as a matter of national public policy, for educational use, their actual use has continually moved away from educational purposes toward activities that are more akin to the concert hall, the theater, the movies, the press—in a word, broadcasting. Many involved (I for one) will conclude that this was a proper development: The most useful response to the needs of the times. Others will disagree. But for education, this is an important history to keep in mind as one contemplates the uses to be made of the new media.

Will this history repeat itself? Will educators see in the new media of pay-cable, videodisks, and the like an opportunity to reach and cultivate adult learners who might otherwise forego new or continuing studies? Will they find instead that the organs of the new media, even those they might create or nominally control, will inexorably slip away to serve other ends? Will "formal education" have to be content with furnishing resources (or a stamp of merit) to "informal learning"? If so, might that be all right anyway? Or should the electronic media finally be made to teach—and to teach rigorously and systematically?

My own guess is that education will fare much better with the new media than it has with broadcasting. Even in the less glamorous field of instructional television (ITV) at the elementary and secondary levels, there are now signs that one of the new media—the low-cost videocassette recorder that can play back television material in the classroom at times of the individual teacher's own choosing—is fast giving a fresh life to school uses of television. Videocassette use is growing at the grass roots: A class here, a school there, a whole system elsewhere. It is motivated by the teacher's wish to use not just those ITV programs specially designed for the classroom but also selected general-audience programming (despite copyright problems) that might be germane to the curriculum.

What the videocassette has done is demolish the greatest drawback of traditional ITV: The rigid, real-time broadcast schedule, and the near impossibility of making it conform to the diverse but equally rigid bell schedules of the schools. It no longer matters when a program is aired so long as it can be recorded for later use at any time. The mass medium has been made a personal medium. You can take it off the shelf as you would a book, and so, increasingly, teachers do. So will adult learners.

The difference—for millions of adult learners who may wish to pursue studies by themselves at home—will probably be in the playback technology. If the new videodisk entrepreneurs succeed in making players that can sell for around $500 and disks that cost no more than LP records of comparable playing time, the option of buying an entire telecourse on pre-programmed disks will probably gain the advantage of price and convenience over cassettes. But the nature of the use will not change from what cassettes are already demonstrating, namely, that one can now use television free of the requirement of being set in place to see a particular program at a particular time with thousands or millions of other viewers.

This distinction also frees the cassette and disk media themselves from the established success imperatives of broadcasting. Not limited to the small number of transmission outlets allocated to each broadcast area, they do not have to command a vast audience at every timeslot in order to earn the greatest possible profit—or to justify the use of public funds. They will only have to sell as many copies as will make a minimally attractive profit (for a commercial offering) or meet costs (for a nonprofit service). No longer squeezed out by channel scarcity, a special-interest program like a telecourse need not be preempted by the big hit, the best seller, or even a public television prime-time feature. Even the topic of narrowest interest will be supportable on its own terms.

I am convinced that market success will crown videodisk or cassette courses like "The French Chef" (adapted from the broadcast series) no less than those for "The Joy of Sex" and its sequels. I am less sure that this boon will flow to higher education, either to its institutions or to its potential adult learners. These new media present, it seems to me, a much greater opportunity to the book, periodical, and record businesses than to the formal teaching enterprise. Indirectly, of course, the institutions of higher education may benefit by adding a new tool to supplement personal instruction. It may encourage them to increase offerings to adult learners that combine home-video lessons with a less onerous schedule of classroom attendance than would otherwise be required.

As for the video materials themselves, the publishers (first among whom are likely to be today's large textbook houses) are more apt to work directly with academic authors than with institutions as a whole. To market their products to many colleges across the country, they will avoid the threat of an identification with one institution.

On the other hand, no one institution will have the means to produce such materials at high quality only for its own exclusive use. Except for quite specially-tailored low-cost applications, the making of television, despite all the advances in production as well as distribution technology, will still require wider use to recover its costs. Groups of institutions, operting as consortia, might solve that dilemma, particularly if they see that certain video lessons should be produced on a subsidized basis that would never be viable in the commercial market. Concluding that something "should" be produced, however, implied a judgment of the objective to be served.

While any organized activity might serve several complementary (or even contradictory) objectives, a consensus about its usefulness usually demands that one objective be deemed foremost. For higher education's interest in the new media, what would that objective be?

If it is education in the broadest sense (like much of public television today), then higher education need do no more than open its laboratory, classroom, or office doors to the occasional visiting camera crew. It might exploit from time to time a challenging program series that was produced under other auspices but adaptable to a credit course offering. But generally it could rest content with having produced in its past students and graduates a substantial audience for the informal learning opportunities that some new media publishers will surely provide.

If the objective is to extend the reach and benefits of higher education to a wider circle of people than can be enrolled in conventional courses on campus, then those academic institutions may have to take a more active lead. Their decision will turn on the degree of choice they feel to be necessary. Will video publishers, like textbook publishers, offer a wide enough choice that professors will be able to pick what they want? For introductory courses that tend to get heavy enrollment everywhere, my guess is yes. More than one commercial publisher may try for the video version of the success that Samuelson and his publisher scored with the basic text, *Economics;* and the same may prove true for a history of music, an introduction to party politics, etc. But for more specialized courses that may attract only relatively small enrollments, the risk investment may be too large for any purely commercial undertaking. A group of institutions might then have to guarantee the market in advance or produce their own materials.

If the objective is to make money for higher education—that is, to return income not only to meet the costs of providing video learning services but also to subsidize other institutional costs—then, alas, the chances of success are probably no better than the chances of making money from ordinary tuition fees today. Except for certain high-volume, vocational and professional training course, perhaps, it will be a remarkable video course for credit that meets even its own costs entirely out of the proceeds from paying students. (Informal learning video materials will be profitable, I think; but these are not, I assume, what is meant by "higher education.")

If the objective is to compensate for the declining enrollment of regular full-time students, then the institutions will have to strike a possibly difficult balance: Though they will want to attract adult students with the convenience offered by learning from television at home, they will have to underscore those aspects of formal education that still require working contact with the institution, lest students conclude they can get along without the institution altogether. In fields where diplomas and degrees are less the tickets to jobs and promotions than they once seemed, the sheer conferral of formal credit will not be enough. Which services and resources, then, will convince adult learners that they still need to enroll in order to learn well?

I passed directly from "home video" (disks and cassettes) to the question of objectives because the various new media that permit use at times of the viewer's own choosing seem to me greatly superior to the others for formal education. Even the proliferation of over-the-air or wired channels, while promoting a diversity of television programming in general, will not have broad consequence for most of what higher education comprises. Only if the delivery of a program can be ordered up by those who want it, when they want it, will these other new media mark a greater significance for education in the future than broadcasting has in the past.

Certain educational services to be provided by satellite and cable (or other local distribution modes) are designed precisely to approximate that degree of viewer control over time and place of program delivery. One example would be the professional continuing-education seminar that is scheduled for simultaneous satellite delivery to several locations where participants gather specifically for the event. Another case would be the several cable-linked institutions in a single community that might order particular programs to be fed from a central playback facility for showing at their own locations, given a system of multiple channels to serve a variety of such requests at the same time. But these are just variations, though increasingly sophisticated, on closed-circuit communications.

By contrast, the hope often held out for education via cable or satellite still stems from the tradition of broadcasting. It is the hope that a great many people reached at home simultaneously will, in effect, attend a "university of the air"—a university represented by one or more fixed schedules of regularly televised course offerings not unlike the lecture and class schedules of the traditional college. This kind of service, it is my guess, will not succeed in the U.S. on any scale worth the cost of supporting it alone. Even the highly-motivated adult learner must accommodate other commitments and distractions, not least the competition for his attention of commercial entertainment programming on the same medium and in the same leisure hours when the telecourses would have to be viewed. The hard work of education embarked on at home alone (or worse, against the competing wishes of family members to do or watch something else) will lose out soon, if not right away, to the less demanding use of one's time. (Public television even at its most popular faces the same problem.) The exceptional viewer-student who will follow fixed-schedule telecourses would have to be so deeply intent on getting an education that he would probably strive to obtain it anyway from existing adult or continuing-education institutions—or from disks or cassettes that would let him schedule his viewing and study at hours that are best for him.

Unlike most countries, the U.S. has already moved, by its vast investments in public education, to satisfy much of the hunger for higher education that can be found or aroused in the adult population. No need for television exists simply to relieve crowding in the classrooms. Indeed, it is because the classrooms are becoming less crowded that some educators hope that the new media might be harnessed to reverse the trend.

Education via television in a form you have "to attend" again and again, at fixed times not of your choosing, strikes me as having no chance. It simply will not work. But if it is education via television in a form and time chosen by the learner, individually: then yes, it has an important future, whether or not the system of higher education as we know it today becomes that enterprise to provide and exploit those promising potentials.

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